



FRIDAY, JUNE 8, 1900

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## Contributions

## Safety Devices on Power Interlocking.

The Standard Railroad Signal Company, (Troy, N. Y., June 5, 1900.)

## TO THE EDITOR OF THE RAILROAD GAZETTE:

In spite of the intimation you gave us last summer that the discussion of the respective merits and demerits of the low pressure pneumatic and the electric high-pressure pneumatic interlocking systems was undesirable for publication, we notice in your issue of last week an unusually acrimonious attack upon our system by Mr. J. P. Coleman in advocacy of his pet device. During the past two years the verdict at the bar of competition has been adverse to Mr. Coleman in every case, and we prefer now, and can well afford, to leave the final arbitrament to the railroad companies. To those signal engineers that may be sufficiently interested in Mr. Coleman's last letter (May 14) we shall be glad to point out the amusing inaccuracies of his statements regarding petty details.

THE STANDARD R. R. SIGNAL CO.

## Bridge Deflections Under High Speed.

Kansas City, Mo., May 29, 1900.

## TO THE EDITOR OF THE RAILROAD GAZETTE:

Prof. Malverd A. Howe's interesting paper on "Bridge Deflections Under High Speed," published in your issue of May 25th, reminds me that a short time ago, when examining some old bridges on an important railroad system of the West, I made incidentally some experiments on deflections, the results of which may prove of interest to the profession. Compared with Prof. Howe's experiments, ours were certainly crude; nevertheless, the results are fairly reliable. They show much higher effects of impact than Prof. Howe found; but this may be due to the fact that the structures examined were of antiquated type and badly detailed.

## Case No. 1.

A deck, pin-connected span 140 ft. 6 in. in length and 17 ft. 5 in. in depth, loaded with one heavy engine and tender and an empty passenger coach, deflected  $\frac{5}{8}$  in. when the load was applied statically and  $\frac{7}{8}$  in. when it was applied as rapidly as possible with a run of from one half to three-quarters of a mile.

## Case No. 2.

A through, pin-connected span of 142 ft. 4 in. similarly loaded gave a static deflection of  $\frac{1}{2}$  in. and a dynamic deflection of  $\frac{5}{8}$  in.

## Case No. 3.

A deck, plate-girder span of 67 ft. 6 in. gave a static deflection of  $\frac{3}{8}$  in. and a dynamic deflection of 11-16 in.

## Case No. 4.

A through, skew, pin-connected span of 121 ft. 6 in. gave a static deflection of  $\frac{5}{8}$  in. and a dynamic deflection of  $\frac{7}{8}$  in.

## Case No. 5.

A deck, plate-girder span of 51 ft. 6 in. gave deflections of  $\frac{1}{2}$  in. and  $\frac{5}{8}$  in.

In Case No. 1 the impact amounts to 40 per cent.; in Case No. 2 to 25 per cent.; in Case No. 3 to 83 per cent.; in Case No. 4 to 40 per cent., and in Case No. 5 to 25 per cent.

These high values for the impact are undoubtedly due somewhat to overstrain, the loose-jointedness of the connections, and inadequate and loose sway-bracing. With modern bridges of good design I would expect much smaller results.

I note that Prof. Howe, in figuring impact compares the measured deflection under moving load with the computed static deflection. Perhaps this is why he finds smaller values for impact than I did, for we measured our static deflections. It has been my experience that computed deflections always exceed somewhat those that are measured, notably in the case of draw-spans.

J. A. L. WADDELL, Consulting Engineer.

## Hand-Book of Testing Materials—Martens-Henning.

New York, May 31.

## TO THE EDITOR OF THE RAILROAD GAZETTE:

In your issue of May 25 I note your review of Marten's "Hand-Book of Testing Materials," which I have had the pleasure of translating. I have carefully read what is said in this review and regret to say that I find several inaccuracies in the statements contained therein. The reviewer has evidently misunderstood the scope of the work and has failed to correctly quote from the translator's preface.

The translator uses three terms for the common American test designated as the compression test. The three kinds of tests which are generally included under this heading are called throughout the book the "thrust test," "crushing test," and "compression test," definitions for each being given. The reviewer quotes the words "crushing test" where he should have used the words "compression test." As this is a very material point in classification of tests attention should be called to this error.

The title page contains the following words: "Part I. Methods, Machines and Auxiliary Apparatus." In the preface it is stated: "My book on 'Testing Materials' for the constructor is designed to be a counsellor to the constructor in all questions relating to the properties of materials of construction. Therefore, the book is divided in two parts, each independent and complete in itself. The first part relates to the general properties of the materials of construction and especially to the art and science of testing materials as applied to machinery and superstructure." This quotation clearly indicates that this first part does not relate to factors and properties of material as results of tests or that it is to be the counsellor to the constructor. All of this information will be contained in Part II and has been purposely separated from Part I because it would have made a book of such dimensions that it could not have been used for practical purposes.

The reference to "technological properties of materials in general" is hardly applicable to the case because the reviewer fails to recognize the exact meaning of technological properties and applies them more particularly to technical data or constants. These, as above stated, will be found in Part II of the work which is now in course of preparation.

The separation of the text and the illustrations into two independent volumes was decided upon after due consideration because the book is above all a book of reference and not for class room exercises. It was found that the same figure is so frequently referred to in different parts of the book widely separated, and the plates moreover are so large, that frequent use, if all had been bound in one volume, would soon lead to the destruction of the plates and produce great inconvenience to the reader.

The reference to the use of simpler and more satisfactory apparatus in common use in this country is also one to which I must take exception. Mr. Martens in his able discussion demonstrates that these so-called simpler and more satisfactory apparatus are quite the reverse and that very important errors are inherent in all of them; that they are hardly even of sufficient accuracy for ordinary routine tests. It is this positive demonstration of the errors of all apparatus and machines which is so fully given in Mr. Martens' book which makes it so invaluable to the investigator. Having demonstrated the relative accuracy of all apparatus used and eliminated those results the accuracy of which has not been demonstrated beyond doubt, the results and data given in Part II will be of the greatest value. Had they been obtained with the simpler devices, without previously determining their relative accuracy, these constants would not possess that authority which they will be found to contain. This first part will be invaluable not only to directors of testing laboratories of all kinds, but especially also to constructors of machines and apparatus used in testing materials, while Part II will be of the highest value to the constructor himself.

GUS. C. HENNING.

## The Boom in the American Iron Trade in 1900.\*

All in all the year 1899 was the most prosperous year in our history, and thus far in 1900 there has been no very great diminution of this prosperity, but it must be frankly added that the demand for many manufactured products is not so active nor are prices as high as in 1899 and early in 1900.

The industrial prosperity of this country in 1899 and during the early part of 1900 has been shared in a greater degree by the iron trade than by any other leading industry, and to an extent which produced in 1899 a boom of the first magnitude—a boom of far larger proportions and

of longer continuance than the celebrated iron and steel boom which began in the latter part of 1879 and came to a sudden termination in February, 1880. A moderate advance in iron and steel prices had commenced in December, 1898, following two whole years of expanding markets but of low prices. This moderate advance continued until February, 1899, when it was succeeded by a more active demand and by a sharper advance, lasting all through March, when prices virtually ceased to advance. Throughout April and the first half of May they were practically stationary, but after the middle of May, to the surprise of almost everybody, they took a fresh start, advancing by leaps and bounds until October, a period of five months, when the advance in some lines was checked. In November the boom practically ended. The prices which had been established at this time averaged an increase of over 100 per cent. upon the prices which had prevailed eleven months before, in December, 1898, and in some cases they greatly exceeded an increase of 100 per cent. Within the eleven months mentioned No. 1 foundry pig iron in Philadelphia rose from \$11.75 to \$25 per ton; gray forge pig iron in the same market from \$10.25 to \$20.25; gray forge pig iron at Pittsburgh from \$9.25 to \$21.75; Bessemer pig iron in the same market from \$10.45 to \$25; steel rails at mills in Pennsylvania from \$17 to \$35; steel billets at Pittsburgh from \$15.25 to \$43; refined bar iron from store at Philadelphia from \$1.25 per 100 lbs. to \$250; refined bar iron at Pittsburgh from \$1 to \$2.75; steel ship plates at Philadelphia from \$1.40 to \$3.15; cut nails from store at Philadelphia from \$1.30 per keg to \$2.80; and wire nails at Chicago from \$1.35 to \$3.28.

From November until March there was only moderate yielding in any iron and steel prices, notwithstanding a serious reaction in the stock market and heavy failures in December, but early in March a distinct weakening in the prices of many iron and steel products was everywhere recognized, and this weakening in prices is still in progress in May, the decline in April being radical in some lines and not entirely wanting in sensational features. Present prices are, as a rule, still far above the average prices of 1899, high as those prices were. In Bessemer steel rails and in all raw materials there has been no weakening whatever. Iron ore and coke are much higher in price to-day than they were less than a year ago. Orders for iron and steel for future delivery are not now so numerous or so pressing as they have been, but an immense tonnage in all forms and of iron ore and coke has been contracted for, and the year's production in all lines promises to be as large as that of last year.

The remarkable character of the demand for iron and steel in 1899 is well illustrated in the large orders for cars and locomotives and steel rails that were placed in the single month of October. The cars ordered in that month from carbuilding companies exceeded 33,000; about 350 locomotives were ordered from locomotive builders; and the orders for steel rails exceeded 500,000 tons. These orders were all for home railroads except a few locomotives. Prices of iron and steel in American markets advanced in 1899 because the demand was greater than had ever before been known, and because early in the year the impression became general and was thereafter sedulously cultivated that our capacity for the production of iron and steel and iron ore and coke was not equal to the country's wants. And yet, with few exceptions, there was no scarcity of iron or steel or of raw materials. The production of iron and steel and of iron ore and coal and coke was of phenomenal magnitude. All the furnaces and rolling mills and steel works and foundries that were in operation at the beginning of the year or that could be put in operation were constantly employed. Our producing capacity was greatly increased. Furnaces and other plants that had long been idle were revived, additions were made to plants already active, new iron and steel works and coke ovens were built, and old iron ore mines were reopened. The reaction from the four years of depression following the financial panic of 1893 was at full tide all through 1899.

In our last annual report mention was made of the great increase in our export trade in iron and steel and manufactures of iron and steel in 1897 and 1898 and of the steady decrease in our imports of these articles in recent years. This favorable condition of our foreign trade in iron and steel continued in 1899, notwithstanding our high prices. Our exports of iron and steel in that year, not including agricultural implements, aggregated in value the enormous total of \$105,689,077, against \$82,771,550 in 1898 and \$62,737,250 in 1897. Our exports in 1899 included 228,665 tons of pig iron, 76,633 tons of old and scrap iron, 271,272 tons of steel rails, 54,244 tons of structural iron and steel, 56,831 tons of plates and sheets, 25,487 tons of billets, 116,317 tons of wire, and 484 locomotives. Our exports of agricultural implements, not included above, rose from a value of \$5,302,807 in 1897 to \$9,073,384 in 1898 and \$13,594,524 in 1899. Of the pig iron we sent abroad in 1899 Great Britain took 80,988 tons, against 76,356 tons in 1898 and 91,196 tons in 1897, and of the steel we sent abroad in 1899 Great Britain took 59,375 tons, against 29,374 tons in 1898 and 25,917 tons in 1897. It will be seen from the foregoing figures that a very considerable part of the extraordinary demand for iron and steel in our country in 1899 was to fill foreign orders.

## General Statistical Summary.

In 1899 the United States made 13,620,703 gross tons of pig iron, 7,586,354 tons of Bessemer steel ingots, 2,947,316 tons of open-hearth steel, and 10,639,857 tons of steel

\*Extracts from the Annual Statistical Report of the American Iron and Steel Association for 1899, completed May 10, 1900.

of all kinds, and rolled in all 10,357,397 tons of finished iron and steel, including rails; there were also shipped in the same year 18,251,804 gross tons of Lake Superior iron ore and 10,129,764 net tons of Connellsville coke. The following table gives the shipments of Lake Superior iron ore and Connellsville coke and the production of

The Chimney of the Metropolitan Street Railway Company's Power-House, New York.\*

BY WILLIAM WALLACE CHRISTIE,†

The brick chimney at the power station of the Metropolitan St. Ry. Co., Ninety-sixth St. and East River, New

Foundation.—The earth being removed 12 in. below the top of the piling, a concrete footing 88 ft. by 85 ft. 4 in. and 20 ft. thick was laid, the top being at the floor level. The concrete was made in the proportion of one part Giant Portland cement to three parts sand and five parts broken stone.

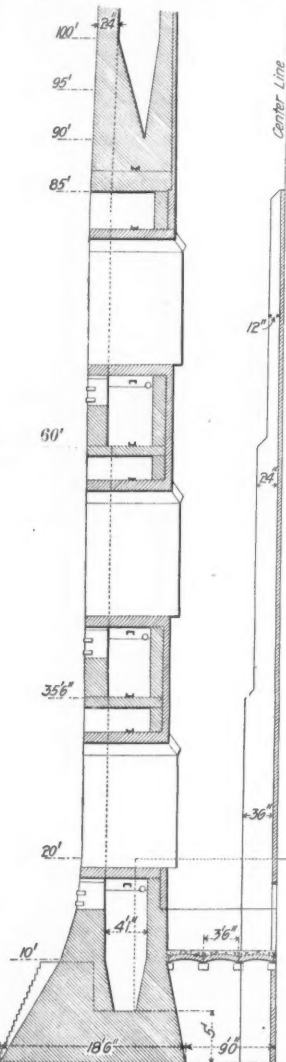


Fig. 2.—Half Section of Part of Chimney.

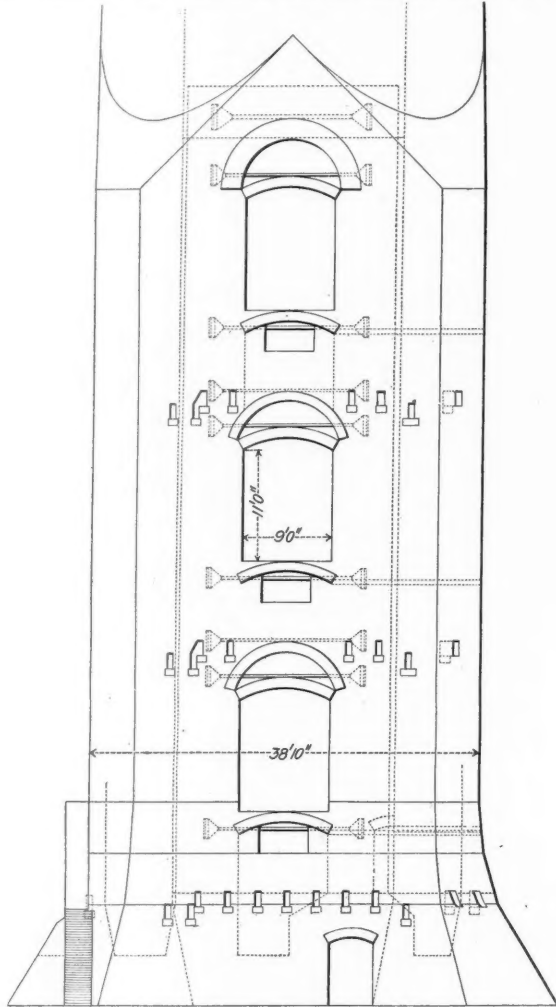


Fig. 5.—Elevation Looking East—Method of Bracing.

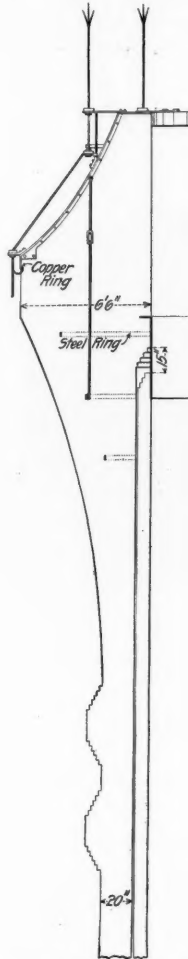


Fig. 9.—Half Elevation of Top of Chimney.

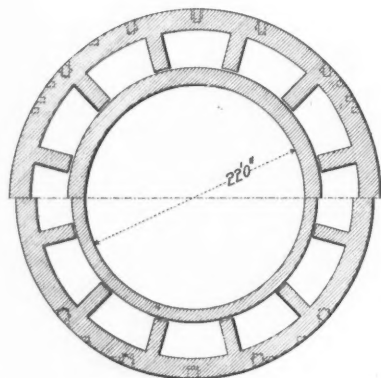
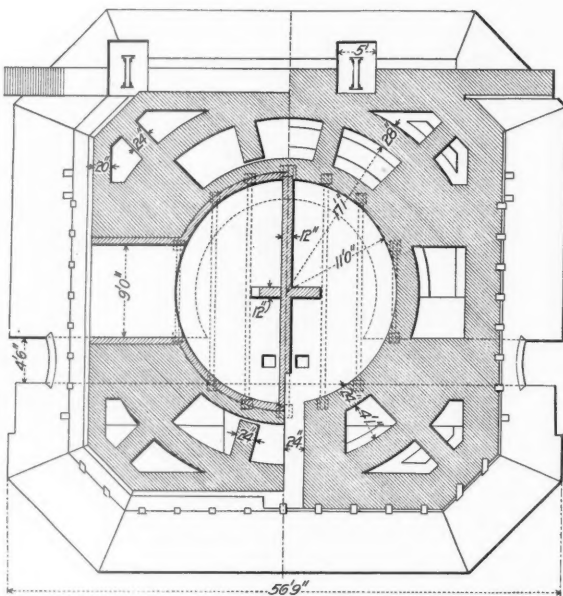


Fig. 7.—Section of Chimney Showing Pilasters.



Section at Elevation of 43 1/2 ft. Section at Elevation of 11 ft  
Fig. 3.

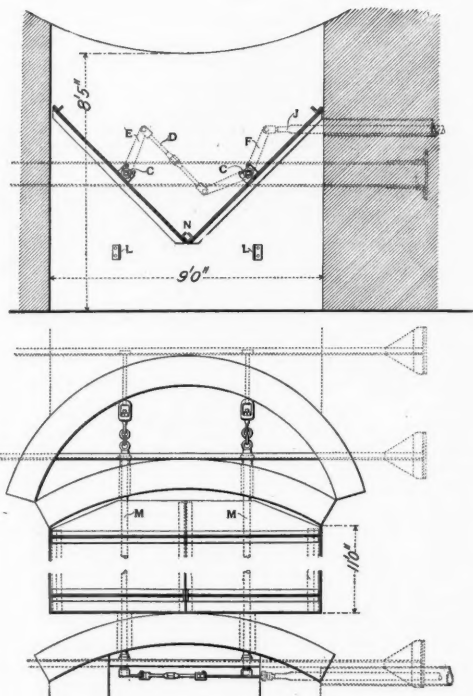


Fig. 6.—Mechanism for Working Dampers.

leading articles of iron and steel in 1899 as compared with 1898.

	1898.	1899.
Gross tons, except coke and nails.		
Shipments of iron ore from Lake Superior	14,024,673	18,251,804
Shipments of Connellsville coke, in net tons	8,460,112	10,129,764
Production of pig iron, including spiegel and ferro	11,773,934	13,620,703
Production of spiegel and ferro-manganese	213,769	219,768
Production of Bessemer steel ingots and castings	6,609,017	7,586,354
Production of open-hearth steel ingots and castings	2,230,292	2,947,316
Production of all kinds of steel	8,932,857	10,639,857
Production of structural shapes, not including plates	702,197	906,277
Production of plates and sheets, except nail plate	1,448,301	1,903,505
Production of all rolled iron and steel, except rails	6,532,129	8,084,697
Production of Bessemer steel rails	1,976,702	2,270,585
Production of all kinds of rails	1,981,241	2,272,700
Production of steel rails, included above	143,815	154,246
Production of iron and steel wire rods	1,071,683	1,069,376
Production of all rolled iron and steel, including rails	8,513,370	10,357,397
Production of iron and steel cut nails, in kegs	1,572,221	1,904,340
Production of iron and steel wire nails, in kegs	7,418,475	7,500,522

York, is the highest one in America, being 353 ft. above the ground level. Its flue diameter is 22 ft. Draught will be supplied to 87 Babcock & Wilcox boilers, having 2,605 sq. ft. of heating surface each, a total of 231,898 sq. ft.

Piling.—The ground near the river at this point being of a salty nature and too unstable for such an enormous concentration of weight—a total of 19,804 tons, or 2.63 tons per square foot—piling was found to be necessary, and 1,300 piles, 40 ft. long, were driven by pile drivers suspended from derrick booms. The tops of the piles were cut off level at a distance of 19 ft. below floor level. The piling was driven 2 ft. 6 in. centers. Fig. 1 shows the pile drivers, piling, etc., as they appeared Nov. 12, 1897.

\*For general views of power station, see the *Railroad Gazette*, Jan. 12, 1900.  
†Member, Am. Soc. M. E.; author of "Chimney Design and Theory."

The load per square foot on the bottom of the foundation concrete is 2.63 tons.

Outer Shell of Shaft.—Starting at the top of the concrete, the chimney proper begins with red brick laid in cement mortar, the base being a square of 55 ft., with each corner cut off 4 ft. 5 in. back from the corner, tapering in to a 39-ft. square at the 20-ft. elevation, as shown in Fig. 2. Up to the 60-ft. elevation the outer shell is 28 in. thick, except at the bottom, where for 5 ft. in height the inner and outer shell are all one; and from that level to the 20-ft. level it gradually decreases to the 28-in. thickness.

From 60 to 150 ft. level, thickness of outer shell is 24 in. " 150 to 200 " " " " 20 " " 200 to 280 " " " " 16 "

at which elevation the thickness is increased to 20 in. up to 323-ft. level, where the diameter is 26 ft. 10 in. Then the cap proper begins enlarging, until, at the 343-ft. elevation, a diameter of 35 ft. is made, giving an overhang



of the cap of 49 in. The top, which is capped with cast iron, will be referred to later. The taper or batter of the exterior cylindrical part is  $3\frac{1}{8}$  in. in 10 ft., or the angle whose tangent is 0.026.

Inner Shell of Shaft.—The inner shell is 20 in. thick

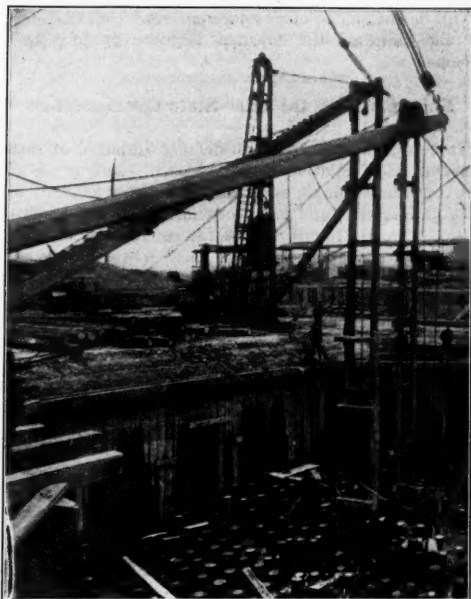


Fig. 1.—Pile Driving, 96th Street Power Station, New York City.

to the 120-ft. elevation, the fire-brick lining of which, 4 in. in thickness, starting at the 15-ft. elevation, extends upward to the 115-ft. elevation, which is 35 ft. above the top of highest damper.

From 120 to 160 ft. elevation, inner shell is 16 inches thick.  
" 160 to 250 " " " " 12 " "  
" 250 to 341 " " " " 8 " "

At this height, as shown in Fig. 9, the inner shell terminates about 15 in. below the outer one, thus allowing for vertical expansion. From this point the outer shell is extended in until it is 22 ft. in outside diameter. The gap is covered or lined by a sheet iron apron to reduce the friction of the gases and prevent eddies.

Base.—At an elevation of 11 ft. there is a false bottom of concrete laid on brick arches, which are in turn carried by 12-in. I-beams set  $3\frac{1}{2}$  ft. centers, as shown in Figs. 2 and 3. From the top of the foundation to the 85-ft. elevation there is a division wall, as shown in Figs. 2 and 3, 12 in. in thickness, built up of red brick, strengthened at the center on each side by 12x36 in. ribs, which decrease to 12x24 as the top is reached.

This separator makes, as it were, two chimneys of the lower part and provides for the entrance of the six flues in three pairs opposite each other.

No precedent can be found for building a deflector of common red brick, while the flue for a long distance up in the chimney is lined with fire-brick. The Clark Thread Works' large chimney, which is used in connection with economizers, delivering the gases to the chimney at a comparatively low temperature, has no fire-brick lining to the flue or on the deflector. It would seem that if it is considered advisable to line a flue with fire-brick it should also be desirable at least to face the deflector with the same material.

On the 11-ft. level, and in the same vertical plane as this separating wall, is a clean-out door, 48x72 in. opening, enabling both sections of the chimney to be cleaned of any ashes or soot collecting there.

Fig. 4 shows clearly this clean-out door opening and flue entrances. There is also a door at the zero level in two sides of the chimney, so that an entrance can be made under the false floor or the ashes removed which may go through the 15-in. square holes in the floor.

The method of strengthening the arches over the flue inlets, Fig. 5, showing two 9-in. channel irons with an 18x18-in. plate riveted to each end—one channel being placed directly over the other—is not, in the writer's estimation, the best means of supporting the brickwork, at least, above the upper opening. One of the largest of recently built circular brick chimneys—that of the Edison station, Paterson, N. J., having a flue 10 ft. in diam. by 225 ft. high—has a number of steel I-beams over the flue opening, far enough to admit of proper protection from the heat, and an arch underneath. Other large chimneys are built in a similar manner.

Flue Inlets.—As previously mentioned, there are six flue openings—two at each of three floors—9 ft. wide by 11 ft. high at the spring of the arch. These openings are lined on the sides with 9 in. of fire-brick and on the top a three-row or 13½-in. fire-brick arch is sprung. It is in these openings that double dampers are set, and as the distance from outside of the chimney to the vertical flue is 8 ft. 5 in., there is ample room for the purpose. Swivelled in bronze bushings, the dampers are held vertically by a chain with a swivel joint attachment to the rods M M, so as to admit of vertical adjustment and not have them grind on the bottom. Both leaves of the damper are operated at the same time by bell cranks, E and F, and rod attachments, shown in Fig. 6. The construction of the pockets under the flue inlets, in which is the damper-operating mechanism, is clearly shown in Figs. 2 and 5. The rod J, which works both leaves of the damper

at the same time, passes from the boiler house through the wall of the chimney in a 6-in. wrought-iron pipe built in the masonry for the purpose, and by rigid connection to the bell crank F, and from it by adjustable rod D to crank E, any movement of the rod J is immediately communicated to the dampers themselves, to open which the extreme end of the damper moves about 27 in. toward and until it reaches the angle iron lug L, when it is wide open. To close the dampers the reverse motion is used, carrying one end of the damper back to the chimney wall on the outside and the other end against the corresponding one of the other damper, as shown at N.

From the 80 to the 90-ft. elevation the outer form changes from square to round. Fig. 7 shows the 12 pilasters from outer shell built to within 2 in. of inner shell to keep it in position. Fig. 8 shows the method of scaffolding, which was carried up to about the 150-ft. elevation outside. From there up to the top all work was done from the interior by means of elevators and scaffolding.

Interior Bracing.—Each of two quarters up to the 90-ft. elevation has the outer shell joined to the inner one by radial pilasters 24 in. wide. The other two quarters have the 24-in. pilasters built from the outer shell to within an inch of the inner shell, but never connected to it, thus allowing for the expansion of the inner shell.

Above the 90-ft. elevation each of the 12 pilasters are 20 in. wide up to the 125-ft. elevation; then 16 in. wide up to the 175-ft. elevation; then 12 in. wide up to the 250-ft. elevation, and 8 in. wide up to the 310-ft. elevation, in all cases the pilasters being left free, 2 in. from contact with the inner shell, except those noted as being otherwise constructed.

Cap.—At an elevation of 336 ft., or 17 ft. down from the top, is a steel ring or hoop embedded in the center of the body of brickwork; 3 ft. above this is another of larger diameter, to which the cast-iron cap is anchored;

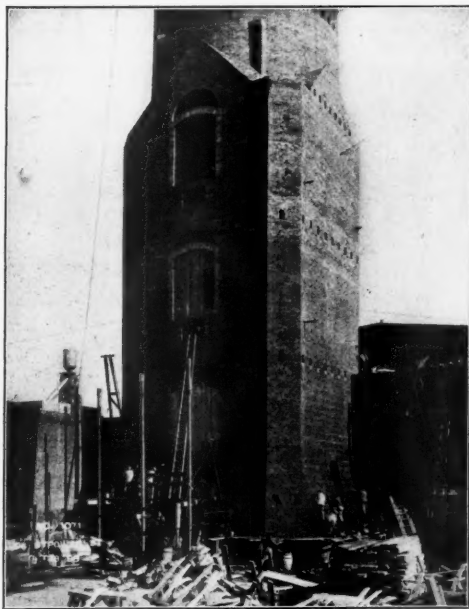


Fig. 4.—Base of Chimney Showing Flue Entrances and Cleaning-Out Door.

3 ft. higher still is another ring embedded within about 18 in. of the circumference of the shell, as shown in Fig. 9. The cap is made of cast-iron in 40 segments, bolted together as shown. The copper tape of 3-16x1 in. section which encircles the chimney cap is fastened to each of the 10 lightning rods. At the top of the largest diameter of the cap masonry, and in connection with the ironwork of the cap, is a copper ring passing entirely about the chimney, and also from which the two 3-16x1 in. copper conductors pass down two opposite sides of the chimney to the base and its ground connection.

The lightning rods, 1¼ in. diameter, terminate at the top in a three-tined forked head, each prong about 9 in. long, spread out and tipped with a platinum point 2 in. long and 3-16 in. diameter at the large end. The writer has seen such a point which had been struck by lightning which originally was sharp, but was flattened to about 1-16 of an in. at the extreme end, but retained its origi-

OUTER SHELL.			INNER SHELL.		
Elevation.	Load, Tons.		Elevation.	Load, Tons.	
	Total.	Per sq. Ft.		Total.	Per sq. Ft.
313	570	4.3	....	....	....
280	840	6.7	....	....	....
200	1,530	11.3	250	233	4.0
150	2,120	9.1	160	597	8.3
100	2,790	9.07	100	954	7.8
80	3,415	5.2	....	....	....
60	4,070	7.2	....	....	....
20	5,410	9.2	....	....	....
10	5,850	6.0	10	1,743	11.6

Total load at base of brickwork, 8,540 tons.  
" " " " concrete, 3.5 " per sq. ft.  
" " " " " 19,804 " " " " 2.63 " per sq. ft.

nal brightness. Some details of the ironwork and the method of attaching the lightning rods are shown in Fig. 9.

The load on the brickwork at the various elevations, beginning at the top and thence downward, is as shown in the table.

From the above it will be seen that the heaviest unit load is on the inner shell, though there is a load nearly as great at the 200-ft. elevation of outer shell, but the greatest average unit load is on the outer shell.

We are indebted to the Engineering Department of the Metropolitan Traction Co. for most of the information from which this article has been prepared. The chimney was designed by their engineering force, of which Mr. M. G. Starrett is Chief Engineer and Mr. F. S. Pearson Consulting Engineer.

Railroad Commissioners' Convention.

The twelfth annual convention of State and Federal Railroad Commissioners was held at Milwaukee, Wis., May 28 and 29. About 100 commissioners and other persons directly interested were present, and 20 States were represented. The presiding officer was Mr. C. J. Lindley, Chairman of the Railroad Commission of Illinois. In opening the meeting, Mr. Lindley delivered an address, in which he referred to the work done by State Commissions for the public, and to the fact that citizens generally do not appreciate the good work which their commissioners do. Commissions are not established simply to fight the railroads; they are to enforce laws and to suggest desirable new laws. To enforce laws and secure public approval a commission must be impartial. Mr. Lindley made a plea for legislation to enable the State Commissions, as well as the Federal Commission, to promptly enforce their orders.

The Committee on Classification of Construction Expenses made a report to the effect that no changes are needed or desired in the present classification. The committee offered a resolution recommending that State Legislatures pass laws requiring detailed reports of the cost of construction of new railroads before allowing them to go into operation; but we have no report of any action being taken on the subject.

The Committee on Uniform Classification presented a report declaring that the desired uniformity in freight classification throughout the country could never be accomplished except by a disinterested body with power to enforce its order, and the committee therefore offered a resolution requesting the Interstate Commerce Commission to again ask Congress to pass a bill requiring the Commission to prepare a national freight classification. This resolution was adopted.

The two principal committee reports, those on the work of State Commissions and on Federal Legislation, were published in these columns last week. The resolution offered by Mr. Knapp's committee was not adopted, a number of commissioners from the South objecting to the clause in it which would allow railroads to pool their earnings. After some discussion the convention adopted a substitute resolution recommending Congress to empower the Interstate Commerce Commission to prescribe rates.

This resolution was adopted by a vote of 28 to 11, and it appears that the report of the committee was adopted, but the full report of the discussion is not yet to hand and we are unable to make out whether or not the convention

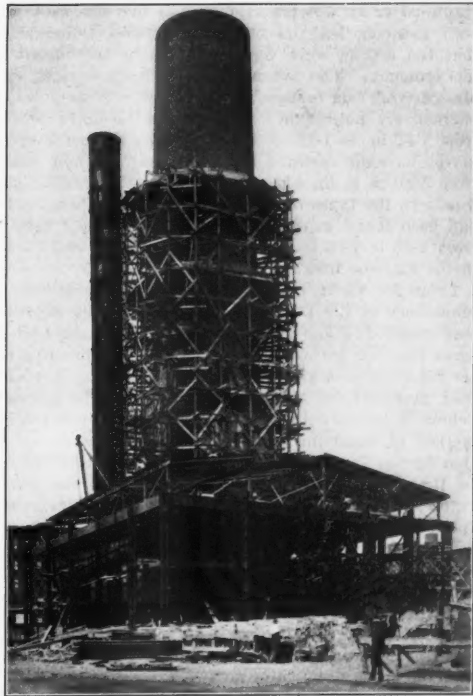


Fig. 8.—Chimney in Course of Construction.

favored the modification of the anti-trust law so as to permit railroads to make traffic agreements.

On motion of Mr. Moseley a resolution was passed asking Congress to give railroad commissioners' orders precedence in the Federal courts.

On the second day an address was delivered by Mr. A.



C. Bird, Third Vice-President of the Chicago, Milwaukee & St. Paul. Extracts from this address are given in another column.

The convention elected the following officers: President, Cicero J. Lindley, of Illinois; First Vice-President, W. D. Evans, of South Carolina; Second Vice-President, T. J. Hennessy, of Missouri; Secretary, E. A. Moseley, Washington, D. C. It was voted to hold the next convention (1901) in San Francisco, and the meeting declared in favor of Charleston for 1902.

After the convention the members went on an excursion through the northern part of Wisconsin. Milwaukee papers tell us that Commissioner Rice, of Wisconsin, acted as host "to a certain extent," but by the operation of the cruel anti-pass law of that State he had to pay his fare, instead of enjoying the hospitality of the railroads, like the other participants in the excursion.

#### Lead and Steam Distribution.

The old subject of lead for locomotives was discussed at the April meeting of the Pacific Coast Railway Club. As usual, a wide diversity of opinion was expressed and many by-ways of the subject were entered upon which might well have been left untraveled. Coming when locomotive requirements in both speed and power are more exacting than ever before, the opinion of several men who have made wide research in this matter is of more than usual interest. Following are quotations from opinions expressed and printed as part of the proceedings of the meeting.

Mr. W. H. Marshall, Superintendent of Motive Power, Lake Shore & Michigan Southern, says in part: "It used to be a very common practice to set the valves on locomotives either line-and-line in full gear or with a certain amount of lead which seldom exceeded 1-16 in. The valves were set in this manner without any regard as to what the lead might be in the cutoffs at which the engine was worked most of the time, and the same rule was applied to all locomotives regardless of the proportions of the valve gears. It naturally followed that with many engines having links of short radius the amount of lead at early cutoff was enormous and it had a bad effect on the steam distribution. The steam was admitted so early and so much of it got into the cylinder that as the piston completed the stroke the steam had to be pushed out again. The engines not only rode hard, but the strain on the rods, pins and driving boxes was much greater than it should have been. By setting the valves so as to have a certain amount of lead, at say 6-in. or 8-in. cutoff, much better results are obtained. It has been my practice to use not more than 1/4 in. at 6 in. cutoff and in many cases the lead is made a little less than 1/4, say 7-32 in. I believe there is very little difference in the result to be obtained from the various ways of setting valves so as to give this definite lead of approximately 1/4 in. in the working cutoff. In reducing the amount of lead at early cutoffs one is at the same time reducing the maximum port opening and the reduction to lead can be carried only far enough to make a smooth running engine. Any further change of this character is simply reducing the port opening without a material gain in other directions. The figure of 1/4 in. may not hold good in all engines, but I think that experiments on any given class of modern engines will show that the most advantageous lead at early cutoff will be greater than 3-16 in. and not more than 1/4 in."

Mr. F. A. Chase, General Master Mechanic of the Hannibal & St. Joseph, said that he had for some years been reducing lead on the same general principle and that the results were very favorable in both speed and fuel economy. The decreased wear of rods, brasses, crank pins, driving box brasses, journals and driving axles was particularly noticeable. Valves had formerly been set from 1-32 in. to 1-16 in. lead when the reverse lever was in the extreme forward motion. The lead now used is from 3-16 to 1/4 in. when the valve is cutting off at about 6 in. In the types of road engine used on his railroad it had been found expedient to set valves so that they had from 1-32 to 1-16 in. negative lead with the reverse lever in the extreme forward motion.

From Mr. C. H. Quereau, Assistant Superintendent of Machinery of the Denver & Rio Grande, this expression was received: "The matter of properly setting lead presents itself to me as follows: The general practice is to set the valve at a given lead in full gear regardless of the lead produced for the running cutoff. This practice I believe to be not only bad but unjustifiable by any correct method of reasoning because it is with the lesser cutoff that by far most of the work of the locomotive is done, so that it is the adjustment of valves in the running cutoff which mainly determines the fuel consumption, speed and wear on the bearings. For this reason it seems to me that the lead should be so adjusted as to secure that which is best for the running cutoff.

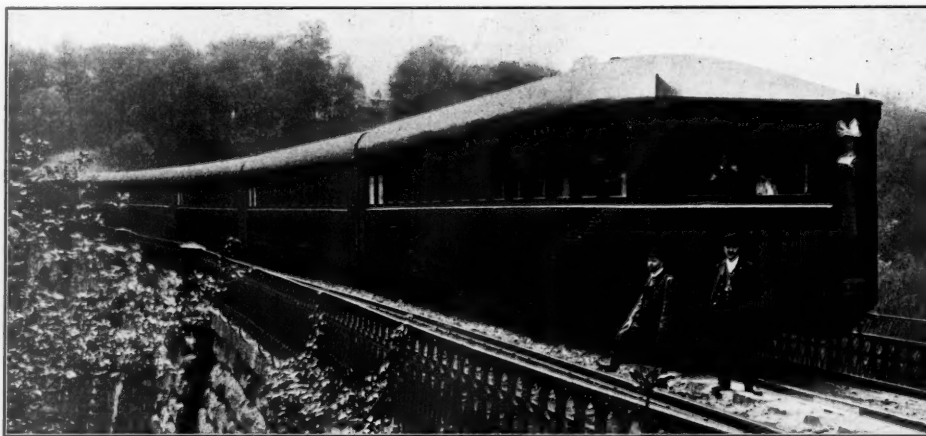
"It is impossible to give all types of engines the same lead for full gear and obtain the proper lead for 6 in. or the running cutoff. This is true because the increase of the lead is determined mainly by the radius of the link, and there are practically no two types of engines of the same link radius. If all engines are given 1/4 in. in full gear the lead for 6 in. or running cutoff will vary from 3/8 to 1/2 in. There is no good reason for setting the valves upon all types of engines with the same lead for full gear. If the common practice was to so adjust the lead that it would be the same for a 6-in. cutoff for all types of engines this would seem to me to be the wisest and most logical plan to follow. I am satisfied that the best lead for all types of engines for the 6 in. cutoff is not far

from the following figures: For the D valve with an Allen port, from 3-16 in. to 7-32 in.; for a common balanced D valve, 1/4 in.; for a 10-in. piston valve, 9-32 in." With 6 in. cutoff I believe I am entirely justified in saying that the above figures should not be varied more than 1-64 in., less, rather than more than what I have given." Mr. Quereau further states that by an adjustment of valves of a given class of engines handling express trains, on the basis stated, it was possible to haul an additional car which was added to an eight-car express train.

#### Adams' Air-Splitting Train.

Mr. Frederick U. Adams, who has fitted up a train of five passenger cars and a baggage car on the Baltimore & Ohio with shields and other devices for reducing the resistance of the air at high speed, has sent us a photograph of his train, which is shown in the engraving given herewith. Accounts of runs made in May have been given in the *Railroad Gazette* (May 25, page 345; June 1, page 362). The cars are old ones with moderate-sized journals. The engine which drew the train from Baltimore to Washington, 40 miles, in 37 1/2 minutes, weighs 57 tons, has driving wheels 78 in. in diam. and cylinders 20 in. x 24 in.; and it carries 165 lbs. steam pressure. No accurate comparison can be made with former records, but it is estimated that this engine did better on this trip than a more powerful engine has done with an ordinary train of the same weight. The longest tangent on the line traversed is only 2 1/2 miles long. On this 85 miles an hour was made. A distance of 4.3 miles was made at 89 miles an hour.

Thus far Mr. Adams has put no shield on the locomotive, and has made no changes in it. The tender is built up to the height of the cars so that there is no break between the engine cab and the baggage car. The windows are flush with the sides of the cars. The siding runs lengthwise the car, instead of perpendicular. The panels are removed. The sides of the cars extend down so as to nearly enclose the trucks and to prevent the air from im-



F. U. Adams' Cigar-Shaped Train.

ping against them. The platform doors extend to the bottom of the steps, and are flush with the sides. The spaces between the cars are closed with flexible connections. The roof is arched and is smooth. The rear car tapers back.

Mr. Adams has also fitted his train with air passages for the purpose of ventilating the cars without opening the windows. All the air for ventilation is admitted from the front end of the tender, and is carried along passages in the roof, which connect when the cars are coupled. From these ducts the fresh air is distributed through the train.

The train is now in the shop undergoing some alterations; and further experiments will not be made for two or three weeks. Mr. Adams expects soon to use a dynamometer car to measure the power required to haul the train.

We record this experiment simply as a matter of passing curiosity and not because we have the slightest confidence in its making any change in railroad practice. It is possible that by housing in the engine and giving it a beak, as is done on some of the express engines of the Paris, Lyons & Mediterranean, and that by covering the space between two consecutive cars and between the engine cab and the head car, the direct head resistance may be diminished somewhat. Indeed we may confidently say that it will be diminished, but in an amount trifling compared with the total resistance. So far as concerns covering in the space between two cars, the saving would be but little, as a column of more or less quiet air fills that space all the time. It is likely that making the sides of the cars as smooth as possible, and turning the joints of the sheathing lengthwise, will diminish the skin friction a little. But here again the saving can be only a minute percentage of the total resistance. The element of flange friction remains just the same. If any wind is blowing the chances are much against its being dead ahead and a quartering wind will crowd the flanges over to one side or the other, causing friction there. To be sure, unless the wind were very strong, the flanges would almost immediately leave the rail to which they had been crowded, but in this way an oscillation is set up of the wheels between the rails, and here, we take

it, is a retarding influence considerably more important than anything Mr. Adams can get rid of by housing in his train. Finally, it is a recognized principle among men who have to carry on the business of the world that it is not good economics to spend more to save money than the amount of money which you save. So we take it that it will be cheaper to burn somewhat more coal than to put on and maintain the housings required by Mr. Adams' scheme.

#### Enforcement of the Inter-State Commerce Law.\*

In rate-making there is no definite standard of reasonableness or of relative reasonableness; there is no guide but individual opinion and there are usually as many opinions as interests, and many circumstances and conditions which appeal strongly to one interest are repudiated by rival interests. One principle must, however, be kept in view; that is, that no rates which are subject to frequent or violent fluctuations can be reasonable. Another is that the only test of a rate is comparison, and this is only approximate. A rate of long standing and satisfactory to all concerned may suddenly become unsatisfactory and unreasonable by comparison with a newly-established rate on some other article or to or from some other market.

I never knew of a complaint that was not based directly upon comparison, nor have I ever seen an order of the Interstate Commerce Commission for a reduction that had not for its justification a comparison with some other rate. Unfortunately for railway companies, whenever a rate has been established and continued, even for a brief period, it is regarded as voluntary and therefore a reasonable rate. It thereafter becomes a standard by which other rates are tried. \* \* \*

A few examples may make clearer the difficulties which confront the railroads. The great spring wheat belt of the Northwest is served by various roads having a great diversity of interests: Two are interested in Minneapolis and Duluth, one is solely interested in Minneapolis, another in Minneapolis, Duluth, Milwaukee and Chicago, another in Minneapolis, Milwaukee and Chicago, still

another in Minneapolis and Atlantic Coast markets. The interest of several others is in Chicago alone. Who is to determine the relation of rates to all these markets, and if determined by any one, who can enforce it. Even if at some time there is an adjustment which temporarily silences clamor for protection, the moment market conditions change, clamor is resumed. This is not an imaginary case; I have only described an existing controversy, the settlement of which seems impossible.

Perplexing questions arise daily. Tariff rates from St. Louis to St. Paul are 5 per cent. greater than from Milwaukee to St. Paul. On the lower classes the difference is but fractional. The distance from St. Louis is 573 miles, from Milwaukee 324 miles. This rate difference was the result of a compromise made years ago, to end a disastrous rate war. Who will claim that, under present conditions, these rates are relatively fair? By what means can the necessary revision be made? An agreement between competing roads is prohibited. If railroads had the right of contract with each other, arbitration might afford a solution, but this is also prohibited. Neither an order of the Interstate Commerce Commission nor of the courts would solve the difficulty, because there is nothing to prevent a reduction of rates, no matter what the real motive. A rate war might result in a revision, but it would not establish a principle any more than right can be established by a duel; it would only show which road had the greatest power of endurance. In the meantime a rate relation which results in a diversion of traffic from one city and group of roads to another, invites, if it does not make inevitable, fluctuating rates. In this case the area of disturbance extends from Lake Michigan to the Missouri River and from St. Paul to Kansas City. The force of competition which grows out of rivalry such as I have described is more pronounced than any other force which bears upon the transportation question.

In a recent suit in a United States Court more than a million dollars damages was claimed on the ground that rates collected by the three defendant railroads were un-

\*Extracts from an address by Mr. A. C. Bird, Third Vice-President of the Chicago, Milwaukee & St. Paul, delivered before the convention of railroad commissioners at Milwaukee May 29.



reasonable. In passing upon this case the Court held that by the passage of the Inter-State Commerce Act Congress had vested the rate-making power solely in the hands of the railroads; that the roads having fixed rates in the manner provided, such rates became lawful, and to refund any portion of the money collected would be unlawful unless it could be shown that the rates were arrived at by agreement between rival carriers, in which case any rate so made would be unlawful. It may be interesting to know that in leading up to this view the court held that it was manifestly impossible to establish reasonable rates by jury trial, because no two juries reach the same conclusion in analogous cases; that uncertainty and confusion would necessarily follow an attempt to find a reasonable basis or a safe rule by such means.

\* \* \* We are led up to three distinct propositions: 1. Rates must be reasonable in all respects. 2. To be so they must not be subject to frequent or violent fluctuations. 3. Competition must have full sway; to prevent it is criminal, although it inevitably causes frequent and violent fluctuations of rates. If these three propositions are correctly stated, and if the principles involved are to be continued as essential to good public policy, what good can be accomplished by further legislation? The reason why the Inter-State Commerce Law is not more fully complied with is that every thing or act necessary to its observance is specifically prohibited by law.

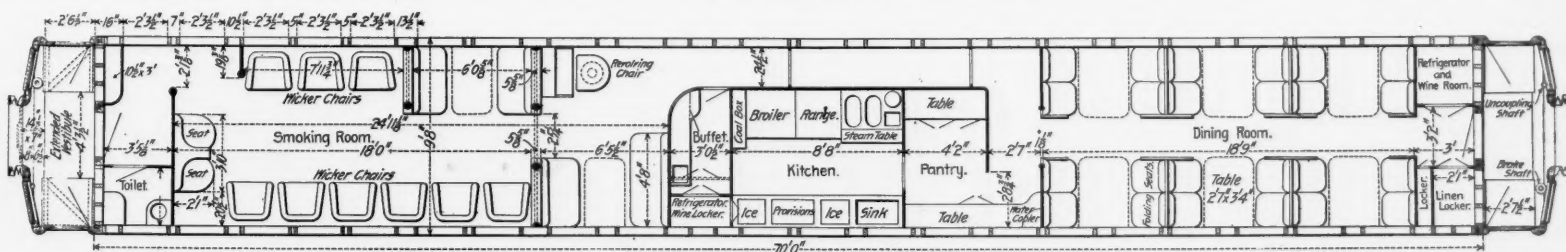
#### The New Cafe Cars of the Erie.

Three 70-ft. café cars have lately been added to the equipment of the Erie Railroad and are running in trains No. 1 and No. 2, between New York and Buffalo. The dining and café car service has previously been met with four café cars, of smaller size, and six regularly furnished dining cars.

The new cars are roomy and pleasant, having many useful and ornamental features in detail, which are outgrowths of the experience of Service Superintendent Clifford in café-car management. The cars were designed by Mr. Robert Gunn, Foreman Carbuilder of the Buffalo shops, where the cars are built.

The total weight is 110,000 lbs., carried upon Pullman six-wheel trucks, with 36-in. steel-tired wheels having journals  $4\frac{1}{4}$  in. x  $8\frac{1}{2}$  in. Automatic frictionless sidebearings are used.

The Sessions standard steel platform is used at both



Floor Plan of the New Cafe Cars of the Erie Railroad.

ends of these cars, there being no "blind end." The extended vestibule is, therefore, part of the design, shown in the plan view of the cars, appearing with this description. Lighting is by Pintsch gas; heating by steam. The body color is Pullman green and the lettering only the word "Erie" set between terminal names, "New York" and "Buffalo." The effect is pleasing.

The interior is divided into but three main compartments; the dining-room, 18 ft. 9 in. long, the kitchen and buffet centrally placed, and the smoking room, 24 ft. 11½ in. long, a partially isolated part of which, 6 ft. 5½ in. long, is the writing room. The dining room seats 24 people as shown in the plan. The seats are high-backed and leather upholstered. In the smoking room proper are seven wicker and two leather-bound chairs. In the writing room, opening as a part of this room, are two seats and a lunch table, a revolving chair and writing desk. These accommodations are free for the use of any first-class passenger on the train. The table service is of substantial, plain silver, specially made for the purpose, and in keeping with the simple elegance which marks the design and furnishings throughout. The kitchen and its accessories are well worth careful inspection by designers of cars.

In trimmings and decoration nice discretion has been shown. Severely plain panel effects in the mahogany interior are softened to the right degree by Roman columnar designs, mirrors, and tasteful carving. Grill work above the passage-ways and French velour portieres lend a touch of luxury to the pleasing whole. The headlining of the smoking room is of white oak veneer. That in the dining room is white enamel with gold border tracery containing a very narrow vein of black. The deck lights are of ground glass, figure-etched, and guarded by double netting against admission of dust. The arrangement of swing doors, shown in the main passage, gives isolation of the smoking room from the dining room.

Lunch is served on order to those occupying the smoking room. Supplies are carried in lockers beneath the car and separate chill compartments are provided for the several parts of the car, as shown.

#### American Railway Association—April Meeting.

##### BLOCK SIGNAL RULES.

The proceedings of the April meeting of the American Railway Association at Chicago were briefly reported in the *Railroad Gazette* of May 4, page 284. The principal

matter which was not fully dealt with at that time, is the report of the Joint Committee, embracing a revised code of definitions and rules for block signaling. In this report the committee recommended an entirely new set of rules for all of the three different methods of block signaling, and these rules were adopted by the association substantially without amendment. The definitions are not materially changed, but the rules are radically rearranged. The rules for the telegraph block system begin with No. 301. The most novel rules are Nos. 316 and 317, prescribing the procedure for blocking by telegraph. The symbols used under these rules are as follows:

1. Display stop-signal. Answer by S. D. or 5.
2. Block clear. Answer by 13.
3. Block wanted. Answer by 2 or 5.
4. Train has entered block. Answer by 13.
5. Block is not clear.
6. Train following.
7. Opening block station. Answer by Nos. of trains in the extended block with time each train entered the block.
8. Closing block station. Answer by "13" after receiving transfer of the records of trains which are in the extended block.
9. I understand.
10. Train following, display stop-signal. Answer by S. D.

A note says: "Additional signals may be used if desired. The signals prescribed under the Controlled Manual Block Signal System should be used for such additional signals wherever applicable."

Rule No. 315 requires a block record to be kept at each block station, but does not say what this record shall contain. Rule 317 (for single track) reads:

To admit a train to a block the signalman must examine the block record, and if the block is clear, will give "1 for —" to the next block station in advance. The signalman receiving this signal, if the block is clear, must display the stop-signal to opposing trains, and reply "S. D. for —." If the block is not clear he must reply "5 of —." The signalman at the entrance of the block must then display the proper signal indication to the train to be admitted.

Where permissive blocking is allowed the following rule applies:

To permit a train to follow a freight train into a block, the signalman must give "71 for —" to the next block station in advance, to which the reply "5 of — S. D. for —" must be made. The approaching train will then be admitted to the block [Under caution-signal or with caution card].

The signal "4," prescribed in the code, is to be given for each train as it enters a block.

In the rules for enginemen is a requirement that an engineman running through a block, say from A to B, on a caution card, must deliver the card to the signalman at B, and personally ascertain from him that the next block (B to C) is clear. Enginemen must not accept clear hand signals as against block signals. When a signal

interested in it, including names of the American roads which participated in the Congress of 1895, and in previous congresses; and programmes of the last and the coming congresses.

#### The Canal Surveys of New York.

The act directing the State Engineer and Surveyor to cause surveys, plans and estimates to be made for the improvement of the canals of the State of New York became a law by the signature of the Governor on April 12, 1900. Steps were immediately taken by State Engineer and Surveyor Edward A. Bond to carry out the provisions of this act. Mr. Trevor C. Luetz, M. Am. Soc. C. E., the present Division Engineer of the Eastern Division of the State canals, and Mr. D. J. Howell, formerly in charge of the investigations of the Eastern Division of the Oswego-Mohawk route for the Deep Waterway Commission, were appointed as consulting engineers to the State Engineer to take charge of and direct the making of all surveys, plans and estimates as directed to be made under the above act. With a view to uniformity in all surveys and records, a series of instructions for survey parties was prepared by the consulting engineers and a copy put in the hands of all assistants in immediate charge of field parties. Requisition was made on the Civil Service Commission for the available list of employees for the survey to be made and steps were immediately taken to procure this list and to make all the preparations incident to the beginning of the surveys and the organization of the field parties.

As a result of the large amount of valuable information, including maps and borings to denote the class of material and depth of rock surface, that was placed at the disposal of the State of New York by the United States Board of Engineers on Deep Waterways, the amount of survey work to be accomplished as authorized in the bill will be materially reduced, especially does this refer to that portion of the route between Oneida Lake and the Hudson River. The obtaining of this information was, of course, contemplated when the bill was drawn and the appropriation for the surveys made.

Seven survey parties are now engaged on the Middle Division of the canal system, three of these working from the east line of Oneida county westward and four other parties from the vicinity of Three River Point, at the junction of the Seneca and Oneida Rivers, westward.

can not be cleared the signalman must use either a clearance card or a caution card.

In the requisites of installation for the automatic system No. 6 reads:

"Signal connections and operating mechanism so arranged that a Home Block Signal will indicate Stop after the head (or rear) of a train shall have passed it."

"Track circuits" are set down among the "adjuncts" of the automatic system.

##### CAR SERVICE RULES.

The principal discussion at the meeting was on the report of the Committee on Car Service, and had to do with the question, what constitutes delivery of a car to a connecting road? The meeting also discussed rules for sending foreign cars home. The report was not adopted, but it was the sense of the meeting that the receiving road ought not to be at liberty to postpone the acceptance of the contents of a car until its inspector is able to examine the running gear, etc. In other words, the acceptance of a car and its lading, with the accompanying assumption of liability for theft or destruction by fire, is a separate question from that of responsibility for condition of the wheels, drawbars, etc. In the matter of sending cars home the committee believed in a pretty stringent rule, but certain members thought that more discretion ought to be allowed. For instance, a superintendent at Cincinnati thought that if he should have a Boston & Maine car which was wanted over in Kentucky to load for Portland he ought to have the privilege of sending it there without first consulting the owners. A motion was made to amend the rule concerning payment for trackage when a train is detoured on account of a washout or similar obstruction, so that the owner of the train should assume all risk of accident regardless of whose neglect caused it. The committee was also requested to consider whether a rule could be made for computing mileage so as to stop such abuses as terminating the mileage at an outer yard several miles short of the actual point of destination.

The Committee on Statistical Inquiry included in its report, but without comment, the rules of the Association of American Railway Accounting Officers for recording train mileage and locomotive mileage. These are shown on pages 217-219 of the Proceedings.

The present pamphlet contains five pages of information concerning the International Railway Congress. This matter embraces condensed accounts of the history of the Congress, so far as American railroads have been directly

Four boring parties, with necessary machinery and plant, are now organized for making borings on this division of the canal with a view to obtaining the proper information for the estimates as to the character of the material to be excavated and the depth below the surface of the rock. On the Western Division of the canal system six survey parties are now engaged; three of these are working from near Clyde westward toward Rochester, and three others from a point west of Rochester toward Buffalo. Four boring parties are also organized to make the borings along this route.

In view of the large amount of information obtained from the Deep Waterway Commission, very few surveys will be required on the Eastern Division, between Utica and the Hudson River. Four boring parties will be organized at an early date to make what additional borings are required along this division in addition to those already made by the Deep Waterway Commission.

A force of engineers is now employed at the office of the consulting engineers in compiling all the information available up to the present time in connection with the Champlain Canal with a view to determining what additional surveys and borings necessary are to be made. The maps obtained from the Deep Waterway Commission will also furnish a large amount of information along the Champlain route, more especially with a view to considering the question of the utilization of that portion of the Hudson River between Troy and Fort Edward instead of following the route of the present canal. It is the intention also to compile all available information along the route of the Oswego Canal in addition to that furnished by the maps of the Deep Waterway Commission and to supply by surveys and borings any additional information needed for a full consideration of the conditions along this canal and a proper estimate of the cost of enlarging it. The question of locks is being considered in the office of the consulting engineers.

Estimates of cost will be made both along the line of the present canal from Little Falls to the Hudson and also with a view to the utilization of the Mohawk River for the canal by canalizing it. Similar estimates will also be made between Little Falls and Rome. Surveys and estimates of cost will be made for some 81 miles of new canal leaving the present canal at or in the neighborhood of New London west of Rome and extending westward by way of Oneida Lake, Oneida and Seneca Rivers and joining the present canal at or in the neighborhood of Clyde. Surveys and



estimates will also be made with a view to the determination of the best route both through the city of Rochester, generally following the line of the present canal, and also by new route to the north as well as to the south of Rochester.

As authorized in the bill, all surveys and estimates will be based on the enlargement of the Erie Canal to a depth of 12 ft. For the Oswego Canal estimates will be made on the basis of both 9 and 12 ft. depths. For the Champlain Canal estimates will be made on the basis of 7 ft. depth.

Surveys, plans and estimates will also be made for a canal connecting Syracuse by way of Onondaga Lake with a line of the new canal extending through Oneida Lake and the Seneca River. The locks on the 12-ft. canal will be estimated upon the basis of admitting two boats at one lockage of 150 ft. length each and a width of 25 ft. each.

The object in view is the completion of all surveys and field investigations, as authorized under the bill, early in September, and the completion of all plans, with estimates of cost, to be submitted at the meeting of the next Legislature, on January 1st. A board of engineers, as previously published, was summoned by State Engineer and Surveyor Edward A. Bond to consider the instructions for survey parties as prepared by the consulting engineers and received their approval.

In the matter of mechanical lift locks, it was considered wise to convene still another board of engineers, who are to report on the relative merits of mechanical lifts and the ordinary type of high-lift lock, after estimates of cost and plans, which are now being prepared in the office of the consulting engineers, are ready to be laid before them. Their final decision in this matter is expected early in July.

### Train Accidents in the United States in April.

#### COLLISIONS.

##### Rear.

4th, on Cincinnati, Hamilton & Dayton, at Piqua, O., a southbound passenger train ran over a misplaced switch and into some freight cars standing on the side track, wrecking four freight cars. Three trainmen were injured.

7th, on Erie road, near Sharon, Pa., passenger train No. 1 ran over a misplaced switch and into some freight cars standing on a side track. The fireman jumped off and was injured.

9th, on New York Central & Hudson River, at Brook avenue and 163rd street, New York City, a freight train standing on the main track was run into at the rear by a following freight, and several cars were damaged. An engine man was badly injured.

10th, 5 a. m., on Lehigh Valley, near Phillipsburg, N. J., a freight train descending a grade broke in two and the rear portion afterward ran into the forward one, damaging 30 cars. The conductor and one brakeman were injured.

21st, on Delaware, Lackawanna & Western, near Cresco, Pa., a freight train descending a grade at uncontrollable speed collided with a preceding train which consisted of three locomotives and a caboose. The caboose was badly damaged, but did not run off the track. The conductor riding on one of the three engines of the foremost train climbed back over the engines, tenders and wrecked caboose to the engine of the freight, and succeeded in stopping the train after it had run about six miles. The colliding freight train consisted of 40 cars of coal, of which 30 were equipped with air brakes connected to the engine; but the engine man had started from a side track without recharging his reservoir.

24th, on Illinois Central, at Stithon, Ky., a freight train ran into the rear of a preceding freight, wrecking the caboose. The fireman was injured.

25th, 8 p. m., on Pennsylvania road, near Bristol, Pa., a westbound express train which had been stopped on account of a hot journal was run into at the rear by the second section of the same train. The engine, the last car of the first train and the baggage car of the second were badly damaged. The standing train was 300 ft. in advance of a block signal which showed a red light. It appears that the second section disregarded this signal, and the distant signal 3,000 ft. farther back. Also, there was a flagman out.

26th, on Central of New Jersey, at Somerville, N. J., a freight train broke in two and the rear portion afterward ran into the forward one, wrecking two cars and blocking both main tracks. Another train on the adjoining track ran into the wreck and was badly damaged. Two trainmen were injured.

26th, on Delaware & Hudson, near Worcester, N. Y., a passenger train ran into the rear of a preceding freight, wrecking four cars of grain. The passenger engine fell down a high bank. Three trainmen were injured.

30th, 4 a. m., on Illinois Central, at Vaughans, Miss., passenger train No. 1 ran into the rear of a preceding freight train, wrecking the engine and several cars. The engine man was killed and three other trainmen were injured. There was a dense fog at the time.

And 18 others on 13 roads, involving 1 passenger train and 28 freight and other trains.

##### Butting.

7th, on Buffalo Creek road, at Buffalo, N. Y., butting collision between freight engines of the B. C. and the B. R. & P. roads. One of the engines was pushing a platform car, on which were a number of workmen, four of whom were injured. There was a dense fog at the time.

17th, 10 p. m., on Plant System, near Tampa, Fla., butting collision between a passenger train and a freight, wrecking both engines and damaging several cars. Four trainmen were injured.

25th, on Denver & Rio Grande, near Sedalia, Col., butting collision between a southbound freight and a northbound empty engine, badly damaging both engines. One engine man was injured. It is said that there was a misunderstanding of orders.

28th, on New York Central & Hudson River, near Winburne, Pa., butting collision between a passenger train and a freight, damaging both engines. One passenger and one trainman were injured.

And 10 others on 9 roads, involving 2 passenger and 18 freight and other trains.

#### Crossing and Miscellaneous.

16th, on Southern Railway, near Paint Rock, N. C., a freight train broke in two and the rear portion afterward collided with the front portion, wrecking the caboose and three cars. The conductor was injured. It appears that the front portion of the train was set back toward the rear portion, but by a misunderstanding of orders the rear portion was at the same time pushed forward by the engine of a following train.

17th, on New York Central & Hudson River, at Woodlands, N. Y., an engine which was sent to assist a gravel train which had been stalled, collided violently with the train, in consequence of a misunderstanding as to where the disabled train was situated. The engine man of the empty engine was injured.

17th, on Pittsburgh, Cincinnati, Chicago & St. Louis, near Cincinnati, O., a gravel train at work on the main track was run into by a freight train, and the engine was ditched. Fireman injured.

18th, 11 p. m., on Pennsylvania road, near Gallitzin, Pa., a helping engine which had just been detached from a passenger train that was running at considerable speed, ran uncontrolled into the side of another passenger train, and wrecked a parlor car.

23rd, on Southern Railway, at Dry Fork, Va., collision on freight trains. Three trainmen injured.

26th, on Central of New Jersey, at Phillipsburg, N. J., a collision of freight trains. Fireman killed.

30th, on Cleveland, Lorain & Wheeling, at New Philadelphia, O., a passenger train collided with some freight cars which had accidentally run out of a side track onto the main line, and the engine and four freight cars were badly damaged. The fireman was injured.

And 20 others on 20 roads, involving 5 passenger and 31 freight and other trains.

#### DERAILMENTS.

##### Defects of Roadway.

2nd, on Spokane Falls & Northern, near Springdale, Wash., a freight train broke through a trestle bridge and 20 cars were wrecked. One brakeman was injured.

6th, on Durham & Charlotte, near Gulf, N. C., a mixed train broke through a trestle bridge and two passengers were injured, one of them probably fatally.

12th, on Pennsylvania road, near Snow Shoe, Pa., a freight train descending a grade on a branch track from a mine was derailed by spreading of rails and the engine and 12 cars fell down a bank. Three trainmen were killed and the engine man was injured.

12th, on St. Louis Southwestern, at Stephens, Tex., a freight train broke through a bridge and the engine and several cars were wrecked. The engine man was killed and the fireman fatally injured.

17th, on Missouri Pacific, near Joplin, Mo., a passenger train was derailed at a point where the track had been weakened by the caving in of an abandoned zinc mine, and the first four cars were ditched. Nineteen passengers were injured, four of them severely.

17th, on St. Louis, Iron Mountain & Southern, near Lincolem, La., a passenger train broke through a trestle bridge and the engine and first two cars were wrecked. The engine man, fireman and mail messenger were injured, the former fatally. It is said that the bridge had probably been weakened by a flood.

19th, on Florida Central & Peninsular, near Waldo, Fla., a passenger train broke through a trestle bridge which had been weakened by a flood, and the engine man and fireman were killed.

And 10 others on 9 roads, involving 2 passenger and 8 freight and other trains.

##### Defects of Equipment.

7th, on Central of New Jersey, at Bayonne, N. J., the tender of a westbound passenger train, which was running backwards, being pushed by the engine, was derailed and fell upon an adjoining main track in front of an eastbound express train; this latter train, which was running at high speed, was derailed. All of its cars were much damaged, and the foremost car of the other train was damaged. Two trainmen and three passengers were injured. It is said that the derailment was due to a broken flange on one of the wheels of the tender.

12th, 4 a. m., on Central of New Jersey, at White Haven, Pa., a freight train was derailed by a broken axle and several cars were wrecked. A brakeman was injured.

22nd, on Hocking Valley road, near Delaware, O., a freight train was derailed by a broken journal which had been overheated. Seven cars were ditched and a tramp was injured.

And 18 others on 11 roads, involving 1 passenger train and 18 freight and other trains.

##### Negligence in Operating.

3rd, at Ellendale, Del., a passenger train of the Philadelphia, Wilmington & Baltimore was derailed by the derailling switch at the crossing of the Queen Anne Railroad, the signalman having been obliged to open the derail on account of the near approach of a train on the latter road. The engine man and fireman were injured.

5th, on Charleston & Savannah, near Ridgeland, S. C., a passenger train was derailed at a burning woodland, where the sleepers had been weakened by fire. The mail and baggage cars were destroyed by fire, but the contents of the cars were saved. It is said that the trackmen had flagged the passenger train but that the flag was not obeyed with sufficient promptness.

9th, on Boston & Maine, at Wentworth, N. H., a passenger train was derailed by a misplaced switch and the engine man jumped off and was injured.

9th, on Southern Pacific, at West Oakland, Cal., a train of empty passenger cars was derailed at a derailling switch and the engine was overturned. The engine man and fireman were injured. The signalman derailed this train to prevent it from running into a freight train.

17th, on Central of New Jersey, at North Branch, N. J., a car in a westbound freight train was derailed by the too sudden application of the air brakes and fell over on the eastbound track. An eastbound freight train ran into the obstruction and its engine was overturned. Fifteen cars were wrecked. One engine man was injured.

23rd, on Rio Grande Western, at Salt Lake City, Utah, passenger train No. 1 was derailed at a misplaced switch and ran against and badly damaged a factory. The engine man was killed.

23rd, on Delaware & Hudson, near Swackhammer, Pa., a freight train became uncontrollable on a steep grade and the engine and many cars were derailed and wrecked. One trainman was killed and two others were injured.

26th, on Wheeling & Lake Erie, at Wheeling, W. Va.,

a passenger train was derailed at a misplaced switch and six passengers were injured, one of them fatally.

30th, on York Harbor & Beach, near York Harbor, N. H., a mixed train descending a grade broke in two and the rear portion ran back to an open drawbridge, where the passenger car fell into the water and was partly submerged, and two freight cars were wrecked. Of the nine passengers in the train two were badly injured, one of them fatally.

30th, 9 p. m., on Gainesville, Jefferson & Southern, at Belmont, Ga., a passenger car at the rear end of a mixed train broke loose while engines were being changed, and ran back down grade about four miles to a sharp curve, where it ran off the track and was wrecked. The conductor and three passengers were injured; and two trainmen jumped off before the car was derailed, receiving slight injuries.

And 6 others on 5 roads, involving 6 freight trains.

#### Unforeseen Obstructions.

5th, 3 a. m., on Fort Worth & Denver, near Magenta, Tex., a southbound passenger train was derailed at a washout and the engine and several cars were wrecked. One passenger and the mail clerk were killed and six passengers were injured.

6th, on Pennsylvania Lines, near Mansfield, O., a freight train was derailed by a tree which had fallen on the track and the engine fell down a bank. Four trainmen were injured.

7th, on International & Great Northern, near McNeill, Tex., a passenger train was derailed by a washout and the engine and first four cars were overturned. One passenger and three trainmen were injured.

8th, 9 p. m., on St. Louis Southwestern, at Best's, Ark., a freight train ran over a switch which had been misplaced by boys intending to derail the train for purposes of robbery, and the engine was overturned. The fireman was badly scalded and two other trainmen were injured. One of the wreckers, 14 years old, the oldest of the gang, was arrested, tried and imprisoned for five years.

9th, 11 p. m., on International & Great Northern, near Tyler, Tex., a freight train was derailed and the engine was overturned. The fireman was killed and two other trainmen were injured. It is said that the derailment was due to a malicious obstruction.

12th, on Illinois Central, near Davis, Miss., a freight train was derailed at a washout. Three trainmen were killed and one was injured.

15th, on Southern Railway, near Brownsboro, Ala., a freight train was derailed by running over a mule, and several cars were wrecked. The engine and several cars fell down a bank and the wreck was partly burned up. The engine man and fireman were killed and five other trainmen were injured.

And 4 others on 4 roads, involving 2 passenger and 2 freight trains.

#### Unexplained.

2nd, on Louisville, New Albany & Corydon, at Hurstburn, Ind., a mixed train was derailed and a brakeman was injured.

3rd, on Norfolk & Western, near Tuggle, Va., a freight train was derailed and seven cars were wrecked. A man stealing a ride was injured.

3rd, on Pittsburgh & Western, near Lamont, Pa., a passenger train was derailed and two passenger cars were ditched. Three passengers and a brakeman were injured.

4th, on Omaha & St. Louis, near Silver City, Ia., a passenger train was derailed and a sleeping car was overturned. The mail clerk and two passengers were injured.

4th, 11 p. m., on Pennsylvania road, near Irwin, Pa., a car in a westbound freight train was derailed and fell across the eastbound track in front of an eastbound freight train, which ran into the wreck. One engine man was killed and two other trainmen were injured.

7th, on Southern Pacific, near Ellinger, Tex., a freight train was derailed and four cars were ditched. One man was killed.

9th, on Waynesburg & Washington, at Washington, Pa., a car in a freight train was derailed and two trainmen were injured.

12th, on Southern Pacific, near Hooker, Cal., a work train running backward was derailed, and the caboose and five platform cars were ditched. Three employees were killed and three injured.

12th, on Atchison, Topeka & Santa Fe, at Wootton, Col., a freight train was derailed and the fireman was fatally injured.

17th, 3 a. m., on Erie road, at Attica, N. Y., a freight train was derailed and 10 cars were ditched. Two trainmen were injured.

17th, on Delaware & Hudson, near Harkness, N. Y., a passenger train was derailed and two trainmen were injured.

17th, on Kansas City, Memphis & Birmingham, near Sulligent, Ala., a freight train was derailed and the engine and nine cars fell down a bank. The engine man and fireman were injured.

18th, on Pennsylvania road, at Byram, N. J., a freight train was derailed and eight cars were wrecked. Engine man and fireman injured.

20th, on Pennsylvania road, at 28th street, Pittsburgh, Pa., a freight train of the Allegheny Valley was derailed and the engine was overturned. Three trainmen were injured.

22nd, 4 a. m., on Great Northern, near Marias, Mont., a freight train was derailed and the caboose fell down a bank and was destroyed by fire. A brakeman was killed and the conductor was fatally injured.

23rd, on Atchison, Topeka & Santa Fe, near Delhi, Col., a freight train was derailed and the engine and 10 cars of oranges were ditched. The fireman was injured.

23rd, on Southern Railway, near Marion, N. C., a freight train was derailed and two engines and seven cars were badly damaged. Two trainmen were injured.

27th, 1 a. m., on Southern Railway, near Fort Valley, Ga., a freight train was derailed and 10 cars were ditched. One trainman was injured.

27th, on Vicksburg, Shreveport & Pacific, near Arcadia, La., a passenger train was derailed and some of the cars were overturned. The express messenger was injured.

27th, on Pittsburgh & Lake Erie, near Fleming Park, Pa., the engine and two cars of a passenger train were derailed, and several passengers were injured by broken glass.

28th, on Kansas City, Pittsburgh & Gulf, near Texarkana, Tex., a work train was derailed and the engine and one car were ditched. One trainman was killed.



And 47 others on 34 roads, involving 5 passenger and 42 freight and other trains.

#### OTHER ACCIDENTS.

16th, on Southern Pacific, near Sabinal, Tex., the locomotive of a freight train was damaged by the explosion of its firebox and the fireman was fatally injured.

25th, on Boston & Maine, near Scarborough, Me., a car in a freight train was found to be on fire, and as soon as possible the door was opened. The dead body of a tramp fell out. The car contained excelsior and it is supposed that the tramp had accidentally set it afire.

And 3 others on 2 roads, involving 3 passenger trains.

A summary will be found on another page.

#### The Lyman Pneumatic Crossing Signal.

The Lyman Pneumatic Signal Company, of New York City, is now bringing out its patent air compressor or pump, track instruments and other necessary devices for ringing a highway crossing bell by means of compressed air, and it is announced that one of the bells has been in use for several years on the Delaware, Lackawanna & Western, at Sherburne, N. Y. The bell or gong is rung by an electro magnet in the usual way. The battery and wires are all within the signal box, and the

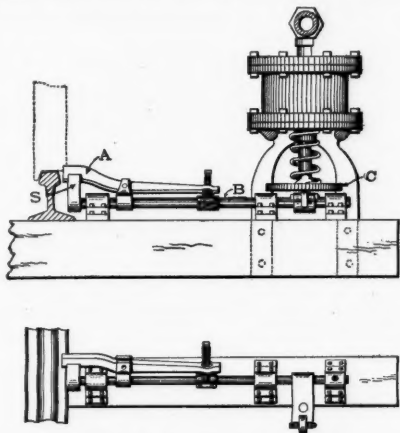


Fig. 1.—Lyman Automatic Air-Compressor.

electric circuit is closed by the piston of an air cylinder which is moved by an air impulse transmitted through an underground pipe from the compressor, located at the distant point. The compressor is actuated by the wheels of passing trains. The amount of pressure required is so small and the adjustment of the apparatus is so sensitive that eight wheel-contacts are more than sufficient to set the bell ringing; in other words, an engine and tender alone will furnish ample power to compress the necessary quantity of air.

The principal parts of this signal are shown in the accompanying drawings. Fig. 1 represents the compressor and track instrument, and Fig. 2 is a perspective of the same. The pump shown in Fig. 2 is the one which has been in service four years at Sherburne. The latest pattern is somewhat different in some of its details, it being found unnecessary to have so high a cylinder. Fig. 3 shows the arrangement of cylinders in the signal box at the crossing and Fig. 4 shows the connections to these cylinders and to the bell.

Referring now to Fig. 3, N is the cylinder by which a train from the north sets the bell ringing, and S is actuated by trains coming from the south. The function

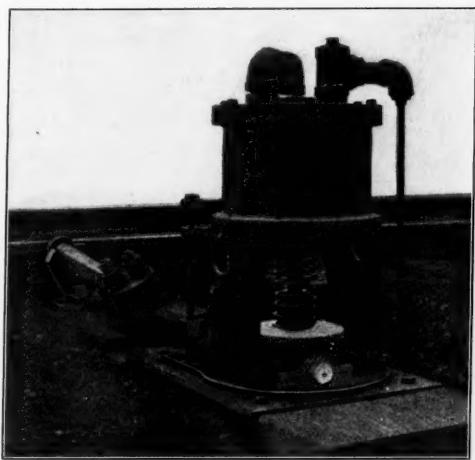


Fig. 2.—Lyman Air-Compressor for Highway Crossing Signal.

of cylinder C is to stop the ringing of the bell, and its piston is moved by a pump fixed close to the crossing. On single track it is of course actuated by trains in either direction.

An impulse of air coming through *n* lifts the piston in N and, by means of rod 3, closes the electric circuit which rings the bell. The bell rings as long as the piston of N remains up and this time is governed not only by the length of the train that sends the air impulse but also by the fit of the piston and the size of the air-escape, which can be adjusted for any desired length of time. When the piston in C is lifted it forces air into the upper ends of N and S and at the same time lifts pins 1

and 2, by which valves *a* and *b* are opened, exhausting the pressure in the lower ends of the upper cylinders. The reference letters N, C and S in Fig. 4 have the same general meaning as the same letters in Fig. 3.

The pump (Figs. 1 and 2) was designed so as to give a piston stroke of four inches, but experience showed that with a piston 10 in. in diameter a stroke of  $\frac{3}{4}$  in. is sufficient, and in the new design the cylinder is made much shorter. As before stated, the shortest possible train furnishes all necessary power to close the bell circuit. Relief valves are provided where necessary to prevent excessive pressure in cylinders.

The track lever or bar A (Fig. 1) is designed for use on a single track road, being so adjusted that trains going in one direction have no effect on the pump. The inclined position of this lever is best shown in the perspective, Fig. 2. The wheels of a train running from right to left (Fig. 2) press against the bar and push it forward, revolving the shaft B (see Fig. 1) and lifting

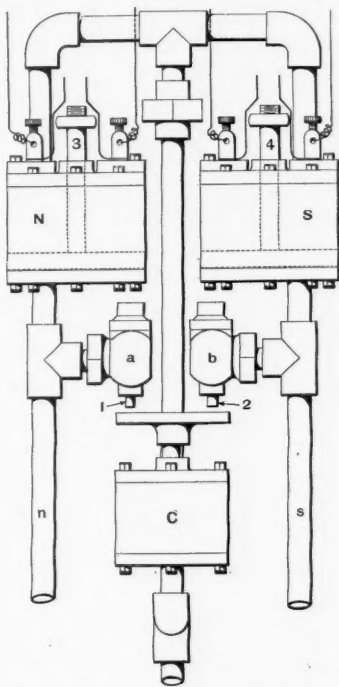


Fig. 3.—Cylinders for Pneumatic Highway Crossing Signal.

the plate C. A train running from left to right pushes bar A into the slot in S, leaving S and B motionless.

The signal at Sherburne is in constant use and the officers of the railroad company give a good account of it. It is, of course, unaffected by lightning or stray electric currents.

The inventors of this signal have also patented apparatus by which a track instrument and a pump of the kind shown can be used to automatically close and open a highway crossing gate; and to make the use of an automatic gate feasible they use an ingenious ball and socket joint, so that if the gate, in coming down, should strike a man or a horse, the blow would be harmless. This is accomplished by making the outer end of the arm (the end farthest from the standard and nearest the center of the street) very light, and joining it to the heavier portion by a joint so controlled by springs that the arm would yield on slight pressure and would move upward or outward. In case a pedestrian or a teamster should be caught between closed gates he would naturally try to escape, and if he should press through the gate the arm would yield without breaking. On both single track and double track lines the gates are so arranged that if a train moving away from the crossing actuates the cylinder to open the gates, while a second train is approaching, the latter train holds the gates closed.

A large model of this signal, and also one of an automatic crossing gate, with a miniature locomotive to set the apparatus in operation, is now on exhibition at the company's headquarters, 80 and 82 Fourth Avenue, New York city. There is also shown in the model the necessary apparatus to work an automatic block signal system on the same principle employed in the other devices.

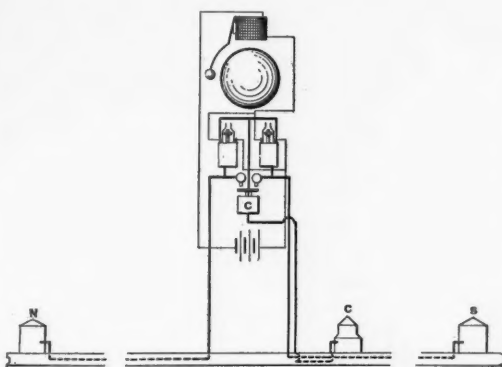


Fig. 4.—Connections for Pneumatic Crossing Signal.

#### The Proposed "Monorail" from Liverpool to Manchester.

English papers of May 18 and 19 contain reports of the hearings on the application of the Manchester & Liverpool Electric Railroad for authority to build a "monorail" line between the cities named. The "monorail" system is the invention of Mr. F. B. Behr, who claims to have improved on the Lartigue method, which was tried in Ireland. A short line designed on Behr's plan was built at the Brussels Exposition (Belgium) in 1897, and was described in *Engineering* in April and June of that year. The single rail rests on iron supports of inverted V shape and the wheels of a car are in the middle of its interior; they are encased so that seats occupy the room on each side.

At the hearings considerable interest was shown in the testimony of Mr. Gerard, Chief Engineer of the Belgian State Railroads, who said that he was convinced that by this plan passenger trains could be run between Manchester and Liverpool at 100 to 110 miles an hour with great safety. Mr. Gerard had, by direction of his Government, made a careful examination of the line which was set up at Brussels in 1897. He said that such a line would not cost more to establish than an ordinary railroad made for the same purpose. The reports before us say nothing about the present status of the Brussels experiment.

The promoters of the Manchester-Liverpool scheme appear to have succeeded in showing that a number of responsible capitalists were ready to invest in the proposed railroad, but there was strong opposition from land owners and from municipal authorities at intermediate cities. Sir W. H. Preece testified that the electrical details proposed were suitable, safe and reliable. To reduce the speed of a train from 110 miles an hour down to, say, 70 miles an hour the inventor, Mr. Behr, proposes to use wings, to be thrown out from the sides of the cars to increase the wind resistance.

In the attempt to show the need of such a railroad the promoters claimed that the daily passenger traffic between the two cities amounted to 4,500 people, but the existing railroads deny this. The actual total number is 2,500, including classes which probably the new line would not get in any event. The present service is claimed to be adequate. The distance between the cities is 35 miles, and the best trains traverse it in 40 minutes. They could do it in 35 if the public wished to pay the additional expense, and as one of Mr. Behr's witnesses, on cross-examination, admitted that the practicable speed would be only 90 miles an hour, the railroad attorney claimed that the proposed new line would require 25 minutes for the journey, thus saving only 10 minutes. The actual average speed on the Brussels line was asserted to have been only 60 miles an hour. It was asserted that all of the railroads carry passengers between Liverpool and Manchester at little or no profit. The competition compels the best and most expensive service, and the rates are not high. It appears that the project will not succeed in Parliament. The committee which has had the matter in hand has refused to pass the preamble of the bill. The committee, in its report, said: "In certain important respects the scheme is seriously incomplete. The evidence has not satisfied us that a safe method has yet been devised of applying effectively brake power to trains running at the high rate of speed proposed (110 to 120 miles), and the proposed line has been laid out without adequate regard to existing interests."

#### Foreign Railroad Notes.

The second great ice-breaker ferryboat, to carry Siberian Railroad trains across Lake Baikal, is at the Newcastle wharf of Whitworth, Armstrong & Co., who built it, ready to be taken to St. Petersburg. It is 200 ft. long, 57 ft. beam, and draws 18½ ft.

The managements of the Saxon State Railroads since 1898 have been entrusted with the duty of arresting and punishing persons violating the railroad police regulations. In 1899 704 judgments were rendered, and fines were inflicted to the aggregate amount of about \$600. In 18 cases the punishment was imprisonment, amounting in all to 39 days. The infractions of the regulations were: 280 getting on or off trains while in motion; 260 trespassing on track; 43 crossing tracks when crossing was forbidden; 40 leaving teams on right of way; 10 improper use of safety brake. In a greater number of cases the trespassers were not punished, but dismissed with the injunction not to do so again.

It is announced that Seligman Brothers of New York, London and Paris, have applied to the Russian Ministry of Finance for the privilege to lay two pipe lines for transporting petroleum, neither of them in the producing district, but both from points on the Volga,—one from Jaroslav to Moscow, 178 miles; and the other from Rybinsk to St. Petersburg, 300 miles. It is proposed to lay 8-in. pipe, capable of delivering about 3,000,000 barrels yearly. The cost is estimated at \$18,000 per mile. The petroleum would be brought up the Volga as now in tank vessels, and the pipe lines would serve chiefly to relieve the railroads. Judging by the complaints, this spring perhaps more general than ever, of the inability of the railroads to handle the traffic brought to their stations, some means of relieving the Russian railroads or of increasing their capacity is very much needed.



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### EDITORIAL ANNOUNCEMENTS

**CONTRIBUTIONS**—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussion of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

**ADVERTISEMENTS**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and these only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers, can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially either for money or in consideration of advertising patronage.

During the month of May orders were noted in our news columns, for 9,786 cars of all kinds and 99 locomotives. This is about the same number of cars ordered in March and three times the number ordered last month; considerably fewer locomotives were ordered in May than in any month of this year. The car orders are divided as follows: Box, stock, furniture and refrigerator cars, 4,138; coal, coke and ore cars, 4,131; flat cars, 1,379; steel cars, 50, and passenger cars, 88. Of the locomotives, 10 were for passenger, 63 for freight and 2 were for switching service; 24 engines were ordered for export. Railroads generally appear to be waiting for lower prices before placing orders for equipment, and just at this time an unusually small number of orders are pending.

Seldom do men express so definitely their attitude and practice upon valve setting as was done in replying to letters of inquiry sent out by the Secretary of one of the Pacific Coast railroad clubs, extracts from which are printed elsewhere in this issue. Oftener the essential point of discussion is lost in a volume of words. Often, in the shop or the roundhouse, pointless discussion bears down reason and fact, and personal opinions, perhaps those of engineers who are riding a hobby, are allowed to bear unduly upon action taken. The opinions expressed and the experience recited by Mr. Marshall, Mr. Quereau and Mr. Chase coincide fully with processes which we have personally checked and applied on the road. The subject, however old, is still of the utmost importance. There exist to-day distortions of valve gear, even in some new engines, which are without excuse and almost beyond belief. An engine having balanced valves with Allen supplementary ports and a link of 53 in. radius could hardly be set 3/16 in. lead upon the lip of the valve with the lever in full gear and the operation be backed by reason. Yet these things are done. Such an engine, as we have occasion to know, will, under full starting load, move forward until one piston or the other approaches somewhere near the center when the engine will be as thoroughly "plugged" as boiler pressure exerted against boiler pressure can make it. The condition as the cutoff is shortened becomes so far from good that on such an engine it would be useless to go through the formality of even applying an indicator before the lead is reduced. The advice in regard to making the valve adjustment conform to the best distribution in a running cutoff cannot be accepted too generally or too soon.

We published last week the two most important reports presented to the railroad commissioners' convention at Milwaukee, and we give this week the substance of an address delivered before the commissioners by Mr. A. C. Bird. The significant thing about these utterances is that both sides—assuming that there are sides—emphasize the need of repealing the Sherman anti-trust law of 1890. From Mr. Bird this

was to be expected; but when Mr. Knapp (for it was he, evidently, who wrote the report on legislation) sets forth in such convincing language the illogical conditions under which Congress compels the railroads to carry on their interstate business, the commissioners will, we trust, pay close attention. Mr. Knapp (or the committee) continues to stoutly maintain that there is no danger in giving the Interstate Commerce Commission power to prescribe rates in any and every case where anybody thinks present rates are too high; but he also presents a full, clear and forcible argument in favor of allowing railroads to hold conferences, under reasonable conditions, and to regulate competition in the way which generally is the only way that it can be regulated—by agreeing beforehand that each competitor shall put up with a certain percentage of the business competed for. As this right to confer about and to agree upon rates is founded on simple and elementary social and business conditions, and as it is clear to everybody that wrongs, if perpetrated in connection with rate-conferences, are due always to the abuse and not the fair use of the right referred to, it is a curious anomaly that we have allowed the Sherman law to stand on the statute book these ten years. Now that we have (for the first time, we believe) a responsible Government officer who will speak out plainly concerning its injurious effects, we may perhaps take new hope that this populist statute will sometime be modified.

If we were to criticize Commissioner Knapp's report we should begin by denying that the Cullom bill, which he wishes to have passed, "preserves to the carriers ample safeguards" against unreasonable reductions in rates. As no one can tell what wild western populist may, under some future president, get control of the commission; and as the constitution of the commission and the theory on which its members are selected lack the safeguards which thus far have kept the Federal judiciary uncorrupted and have maintained in it a high standard of wisdom, we shall continue to insist that it is still risky to entrust the Commission with absolute powers, or powers like those of the Federal Courts. But we have said all this before and need not repeat it. What we do call attention to now, as a weak point in a presentation otherwise strong, is the statement of knotty problems which it would be desirable to have settled, without any hint that their settlement is practically impossible. Take, for example, discriminations for or against localities. Does any one suppose that, in any particular case, one disease can be cured without producing another? Metastasis is as familiar to freight-rate doctors as to physicians and fully as troublesome. It is quite true that in some of the cases which are now troublesome—take either those cited by Mr. Knapp or those cited by Mr. Bird—the public would probably be benefited by an overturn. In spite of the damage to one interest, other interests ought to be granted relief. But only an absolute governmental authority could enforce such a change, and we venture the assertion that no Russian or German minister, used to doing such things, would think of attempting in this country, under the conditions of distance and rival commercial interests that would hamper him, to apply some of the remedies for rate-injustice that are proposed by shippers, congressmen and interstate commerce commissioners. Again, who can devise any feasible scheme for carrying flour to Europe as cheaply as bulk grain is carried? The millers in the West complain because European millers can buy American grain and undersell them; but the shipment of grain and flour to Europe is a business in which there is very free and severe competition and the very fact that grain is carried on more favorable terms than flour is itself a strong indication that the cost of carriage is less; and where the cost is less (and all rates are very low) what principle of economics can be found to justify an arbitrary reduction of the higher rate? It is well to have our knotty problems clearly set forth, and it is desirable to discuss all possible means of solving them; but when this has been done and there is still left a great gap in the argument that no ingenuity can fill, there ought to be at least a suggestion what the true situation is; for the great majority of those who read on this subject are only partially acquainted with the difficulties that surround it.

### Railroad Building in America and Elsewhere.

We have already noted, commenting on the statistics of the railroads of the world in 1898, that the rate of increase in mileage in the United States for the four years then ending was much less than in the rest of the world. This is a new thing under the sun, and it is caused not by any considerable increase elsewhere, but by a great decrease here. For a very long period down to 1893 the mileage built here had been

vastly greater than in all Europe; in the four years ending with 1883 it was three times as great and not till after 1887 did it cease to be twice as great. But in the four years ending with 1898 our system increased only 7,112 miles, or 4 per cent.; while the European system increased 15,283 miles, or 10 per cent. But we still have a mile of railroad to 398 people (the Archiv's statistics made it a mile to 378 by an erroneous estimate of population), while in Europe there is a mile to 2,267 inhabitants.

Russia, till lately, has been very slow to build railroads, and with its great area of fertile land and its population of more than 100 millions in Europe is still very scantily supplied with them, as is indicated by a population of 4,032 per mile of railroad, but she has at last taken the lead in Europe in construction, and in the four years to 1898 added 4,208 miles, or 19½ per cent., to her mileage in Europe, which is about equal to the length of the whole Siberian Railroad when completed. It is true that we have built three times as much railroad in this country in a single year; but the above was a great feat for Russia, which also built meanwhile 2,247 miles in Asia.

The decline in construction in this country is a fact of tremendous significance. For a very long time, railroad building was one of the chief industries of this country, and it absorbed a great part of all the capital available for investment. But the 7,112 miles built in the four years to 1898 must have cost something like \$1,000,000,000 less than the 35,004 miles built in the four years to 1883. Now being sufficiently provided with instruments for transportation, the amount of capital available for other instruments of production, and for producing goods for consumption, has increased enormously, with such tremendous effect as to astonish all the world; and ourselves, perhaps, most of all.

### April Accidents.

Our record of train accidents in April, given in this number, includes 69 collisions, 133 derailments and 5 other accidents, a total of 207 accidents, in which 36 persons were killed and 146 injured. The detailed list, printed on another page, contains accounts only of the more important of these accidents. All which caused no deaths or injuries to persons are omitted, except where the circumstances of the accident, as reported, make it of special interest.

These accidents are classified as follows:

Collisions.	Rear.	Butting.	Crossing and other.	Total
Trains breaking in two.....	9	0	0	9
Misplaced switch.....	2	0	1	3
Failure to give or observe signal.....	2	1	3	6
Mistake in giving or understanding orders.....	1	3	1	5
Miscellaneous.....	3	3	8	14
Unexplained.....	11	7	14	32
Total.....	28	14	27	69

### Deraillments.

Broken rail.....	3	Bad switching.....	2
Loose or spread rail.....	5	Too quick application of air-brakes.....	2
Defective bridge.....	6	Runaway.....	4
Defective switch.....	1	Failure to observe signal.....	1
Cave-in of roadbed.....	2	Animals on track.....	1
Broken wheel.....	2	Landslide.....	2
Broken axle.....	9	Washout.....	4
Broken truck.....	4	Malleous obstruction.....	3
Fallen brakebeam.....	2	Accidental obstruction.....	1
Failure of drawbar.....	2	Unexplained.....	68
Broken car.....	2		
Misplaced switch.....	4		
Derailling switch.....	2		
Track repairs.....	1		
			133

### Other Accidents.

Boiler explosion.....	1
Cars burned while running.....	1
Breakages of rolling stock.....	1
Other causes.....	2
	5

Total number of accidents..... 207

A general classification shows:

Collisions.	Deraillments.	Other Acc'dts.	Total	P. O.
Defects of road.....	0	17	17	8
Defects of equipment.....	9	21	32	15
Negligence in operating.....	28	16	45	22
Unforeseen obstructions.....	0	11	13	6
Unexplained.....	32	68	100	49
Total.....	69	133	207	100

The casualties may be divided as follows:

Killed—	Collisions.	Deraillments.	Other accidents.	Total.
Employees.....	2	28	1	31
Passengers.....	0	3	0	3
Others.....	0	1	1	2
Total.....	2	32	2	36
Injured—	Collisions.	Deraillments.	Other accidents.	Total.
Employees.....	33	60	0	93
Passengers.....	1	48	0	49
Others.....	0	4	0	4
Total.....	34	112	0	146

The casualties to passengers and employees, when divided according to classes of causes, appears as follows:

Pass. Killed	Pass. Injured	Emp. Killed	Emp. Injured
Defects of road.....	0	21	8
Defects of equipment.....	0	3	1
Negligence in operating.....	3	13	8
Unforeseen obstructions and malfeasance.....	0	1	6
Unexplained.....	0	11	8
Total.....	3	40	31



Twenty-two accidents caused the death of one or more persons each, and 45 caused injury but not death, leaving 140 (68 per cent. of the whole) which caused no personal injury deemed worthy of record.

The comparison with April of the previous five years shows:

	1900.	1899.	1898.	1897.	1896.	1895.
Collisions .....	69	38	50	36	21	33
Derailments .....	133	74	68	63	72	75
Other accidents .....	5	2	7	6	1	9
Total accidents .....	207	114	125	105	94	117
Employees killed .....	31	18	17	16	22	17
Others killed .....	5	6	1	5	6	10
Employees injured .....	93	39	23	54	49	50
Others injured .....	53	29	25	36	15	40
Average per day:						
Accidents .....	6.90	3.80	4.17	3.50	3.13	3.90
Killed .....	1.20	0.80	0.60	0.70	0.93	0.90
Injured .....	4.86	2.22	1.60	3.00	3.47	3.00
Average per accident:						
Killed .....	0.17	0.21	0.14	0.20	0.30	0.23
Injured .....	0.71	0.60	0.38	0.86	1.10	0.76

The month of April is generally about the lightest of the year in the accident record, but this year the totals are pretty high. It is possible, however, that in this case, as in certain months to which we have called attention heretofore, the apparently unusual character of the record is due in part to unusual thoroughness in the work of our "clipping bureau." Though the number of accidents now reported is large, the number of persons killed is not so unusual. The largest April totals during the past 10 years are:

	No. accidents.	Persons killed.
1891 .....	181	56
1893 .....	173	35
1900 .....	207	36

Though the number of passengers killed in April was not unusually large the list of passenger train wrecks shows several serious cases. The derailment at Magenta, Tex., on the 5th, was followed by the destruction of the whole train by fire, but, fortunately, the list of deaths and injuries was not very large. One of the worst passenger train accidents was the rear collision at Bristol, Pa., on the 25th, but in this case the rear car of the foremost train was nearly or quite empty at the moment of collision. In the drawbridge accident at York Harbor, N. H., the passenger car was almost completely submerged in the river, but here again the passengers made fortunate escapes. There were six other bridge accidents in April, and one of these involved a passenger train, but the reports do not indicate that the injuries to passengers were fatal.

The number of electric car accidents reported in the newspapers in April was only four, and the number of persons injured in them was eight. In one case, at Chicago, a street car which was derailed by a broken flange, ran into a river, but the occupants of the car succeeded in getting out safely.

On the night of April 14 a passenger train of the Burlington road entering Kansas City struck a wagon containing 12 persons, and 11 of these were injured, four severely; but none were killed.

The New York, Susquehanna & Western, which is controlled by the Erie, has put the block system in use on its line between Jersey City and Paterson, N. J., 21 miles, and in connection therewith green has been adopted as the night color for all-clear on fixed signals. The book containing the block signal rules contains colored illustrations of fixed signals; distant signal arms are painted yellow and a yellow light is shown at night when the distant arm is in the horizontal position. The definitions, requisites of installation and adjuncts laid down in this book are copied after the forms shown in the latest code of the American Railway Association (the one adopted at the meeting of last April), which is referred to in this issue of the *Railroad Gazette*. The rules, divided into two parts, one for signalmen and the other for engineers, conform in their general principles to the rules of the A. R. A. code, but there are many differences in arrangement, and there are some rules which do not appear in the standard. The numbers begin with 601; whereas these rules in the standard code begin with 301. In the regulations for signaling by bell signals the Susquehanna has those for the Sykes system and those for the simple bell (without electric locks) combined in the same code. The presence of rules for the Sykes apparatus in this book is explained by the fact that the same book is intended for adoption soon on the Erie road, which has the Sykes apparatus in use between Jersey City and Turners. The book also contains a brief code for the use of bell signals between a block station and an outlying switch. It also contains a chapter on interlocking plants, including definitions, requisites of installation and rules for operation, all based on the code as reported in the Proceedings of the American Railway Association for October, 1897.

Mr. Osborn, Railroad Commissioner of Michigan, who was present at the Milwaukee convention, is a candidate for the Republican nomination for Governor of his State; Mr. Hamblin, of Illinois, is said to have similar aspirations toward the attorney-generalship of his State; and the Milwaukee *Sentinel* says that "more than a few" of the men present at the convention are candidates for one State office or another. A former railroad commissioner of Michigan, Mr. Rich, subsequently became Governor. Mr. Flory, the present chairman of the Commission in Missouri, is, we believe, the nominee of the Republican party for Governor, to be voted for at the coming election. It is quite possible that inquiry would bring out facts like these concerning other States. We have no comment to make; but it may not be amiss to observe

that in laying out work for a Railroad Commission a Legislature ought always to allow a sufficient percentage of free time, so that the Commissioners can go home to mend their fences whenever necessary. At least, this seems to be the case "out west."

#### NEW PUBLICATIONS.

*Machinists' and Draughtsmen's Hand-Book.* By Peder Lobben, Mechanical Engineer, etc., etc. Octavo, 438 pages; tables, illustrations and index. New York: D. Van Nostrand Co., 1900. Price \$2.50.

The sub-titles of Mr. Lobben's book explain that it contains tables, rules and formulas with numerous examples explaining the principles of mathematics and mechanics as applied to the mechanical trades and that it is intended as a reference book for all interested in mechanical work. In his preface the author explains that it is his hope that this book may be a help to working mechanics, of whom he is one. It is not intended as a reference book alone, but to be studied by the ambitious young engineer and machinist.

The author has not supplied his volume with a table of contents although it has an index. Therefore, the reviewer is compelled actually to look through the volume to see what is contained, which is asking a good deal of reviewers. It begins with a general view of arithmetic, then proceeds with algebra, logarithms, geometry, trigonometry, problems in geometrical drawing, mensuration, strength of materials, mechanics, machine design, transmission of power, etc. There are numerous tables of logarithms, squares, cubes, etc., tables of weights and measures, weights and dimensions of materials, hydraulic tables, steam tables, etc. There are also numerous examples worked out of the applications of the principles explained in the text. In brief the volume is a compendium of the mathematical and mechanical education which we try to give to a boy in about 10 years of preparatory school and college work, although it does not tackle the calculus or other higher mathematics. To the young man who has been through a technical school the book will perhaps not be of much use, because he knows where he can get all of the information contained within its covers and a good deal more. We judge, however, that it might be of a great deal of use to the people for whom it is written. Obviously, it is clear, simple and systematic, and the numerous examples must be of great help to the student. Physically, the book is agreeable; that is, it is well printed and well bound and one can read it with pleasure.

*Statistics of the American and Foreign Iron Trade for 1899.* Being the Annual Statistical Report of the American Iron & Steel Association. Compiled by Mr. James M. Swank, General Manager. Philadelphia: The American Iron & Steel Association, 261 South Fourth St. Price \$3.

This important annual statistical report was presented to the members of the Association, May 25, being brought up to May. The general review of the trade, with some general statistics, appears on another page of this issue. The pamphlet contains a notice of deaths in the iron and steel trade for 1889 and 1900 and a careful review, with statistical tables, of the American iron and steel trade. A few pages are given to statistics of the Canadian trade, and a few more to statistics of the European trade. No other publication in this line is at once so complete and so authoritative.

*The Engineers' Club, of St. Louis.*—This Club issues its fifth annual bulletin, which gives a summary of the official business of the Club for the year, the constitution and by-laws, list of members and a number of papers. Among the latter is the address of Mr. W. H. Bryan on the History and Work of the Club, delivered at the celebration of its 30th anniversary a year ago. Another is the address of the retiring president, Mr. B. H. Colby, delivered at the annual dinner last December. This is on Pollution of Streams, with special reference to the Chicago Drainage Channel.

#### TRADE CATALOGUES.

*Steel Tires.*—The Latrobe Steel Co., Girard Building, Philadelphia, Pa., has issued a little book of 14 pages descriptive of its works and product. It is said that this is the only plant in the United States, and probably the only one in the world, specially and originally designed to make steel tires for locomotive driving wheels and car wheels. The works, at Latrobe, 40 miles east of Pittsburgh, were built in 1888 and 1889. The tires are subjected to final inspection and very careful measurement and are mated in sets, and the company urges upon its customers the benefit to be derived from observing the marks upon the tires, thus placing together those which have been mated at the works. Thus each locomotive, or each pair of car wheels, is equipped with tires of the same size and the same hardness and the results in service have proved the desirability of this practice. Tires are delivered either rough or finished. Where no specific section of tread is asked for the company always furnishes sections to the M. M. and M. C. B. standards. One table in the book gives weights of tires for wheel centers of 18 in. up to 78 in., for tires 3 in., 3½ in. and 4 in. thick, from 5½ to 6 in. wide and for either flanged or plain tires. Another table gives shrinkages for centers from 20 in. to 84 in. The company also makes weldless soft steel flanges for pipe lines and steel cruiser rings and shells for ore crushing machinery.

*Drop Forgings.*—J. H. Williams & Co., Brooklyn, N. Y., issue a new catalogue (for 1900) of drop forgings, being a convenient and substantial little pamphlet of 54 pages. Especial attention is called to some new lines of forgings. One of these is a line of drop-forged socket wrenches, which is very complete and will be of service to engine and pump builders as well as to the general machine trade. These wrenches are made single-head and double-head and they run up to 13¼ in. in length and to 3¼ in. diameter of head. Another new line of articles carried in stock are valve stems, rod ends and crank shafts, which may now be supplied in a variety of sizes and weights. A line of straight-tail lathe dogs has been added; these are made in the same sizes as the bent-tail dogs, which have been carried in stock for some years. This is said to be the only drop forged straight-tail lathe dog regularly carried. Other specialties which should be mentioned, either for novelty or because of recent additions to the line carried, are drop-forged hoist hooks and steering gear forgings for automobiles. The company is prepared by its outfit of machinery and experience to make special forgings to almost any design, and also to anneal and finish forgings for customers.

*Wonderland; Descriptive of the Region Tributary to the Northern Pacific Railway and Including More Particularly the Story of Lewis and Clark's Exploration of the Northwest.* By Olin D. Wheeler. Pamphlet. 132 pages. Illustrated.

The Passenger Department of the Northern Pacific issues a beautiful pamphlet as the edition for the year 1900 of its annual publication called "Wonderland." This will be forwarded to any address on receipt of 6 cents in postage stamps. The pamphlet opens with a brief account of the Louisiana purchase and then follows the fascinating story of the great exploration by Lewis and Clark in 1804 and 1806. This is followed by a concise story of the organization and building of the Northern Pacific with some account of the remarkable results reached within the last few years in improvement of the property physically and financially. There is a brief chapter on the Yellowstone Park and a few pages are given to descriptions of a couple of mountain hotels, followed by a statement of rates and arrangements for the tourist season of 1900. The pamphlet is of real value quite apart from the beauty and interest of the illustrations.

*Compressed Air.*—The Compressed Air Co., 621 Broadway, New York City, issues a pamphlet designed to advertise the compressed air apparatus controlled and built by that company. The Compressed Air Company, as probably our readers know, is a consolidation which controls the American Air Power Company, of New York, and the Compressed Air Company, of Illinois. It makes air motors for street railroad service and for service on suburban lines of steam railroads and various mechanical devices for the use of compressed air. It is prepared to design motors for special service and to submit new designs for special work. In the pamphlet we find the statement that the motors now running on the Twenty-eighth and Twenty-ninth street lines of the Metropolitan Street Railway Company of New York are being replaced with new motors of improved design. It is said that the cost of an air installation is about the same as that of a good overhead trolley installation, which, of course, is very much less than underground and special track construction work for the conduit system.

*Compressed Air Machinery and Other Railroad Tools.*—The Pedrick & Ayer Co., 85-89 Liberty St., New York City, issues an octavo catalogue of 126 pages with alphabetical index. This describes compressors and compressed air riveters, hoists, cranes, etc., also a line of special railroad machine tools and appliances. The compressors are driven by belt from a line shaft or by electricity. A number of pneumatic hoists are shown, of various lifts and sizes, with the necessary attachments. Pneumatic and hydro-pneumatic cranes are also shown in variety. Portable pneumatic riveters are shown with gap from 10 in. up to 20 and total effective pressure of 43,000 lbs. to 188,000 lbs. Stationary riveters and special riveters adopted to different purposes are also described as are milling machines and attachments, boring bars, special cylinder boring machines and other ingenious and interesting tools. This concern makes, as is perhaps known to most of our readers, a locomotive link motion model, useful for instruction.

*Pneumatic Tools.*—The Standard Pneumatic Tool Co., Marquette Building, Chicago, sends a copy of the special Paris Exposition edition of its catalogue. We regret that the company has not considered it necessary to put the descriptions of its apparatus into French and German, English only being used in this pamphlet. The engravings tell the story pretty well, but we should suppose that the European interests of the company would be better served if those who can not read English could read the text. A large number of "Little Giant" pneumatic tools are shown, with brief descriptions of size, weight, capacity, etc. What these tools are our readers know so well that it is unnecessary for us to make any special mention of them. We venture to say that few lines of American tools and machines will attract so much attention at Paris as the pneumatic tools which our people have developed with such ingenuity.

*Pneumatic Tools.*—The Chicago Pneumatic Tool Co. have issued a special catalogue for the Paris Exposition.



The catalogue is printed (with a concise description of each tool or machine) in English, French and German. The half-tone illustrations are made from photographs and wash drawings, which have been prepared with particular reference to the best representation of the article. The catalogue not only shows the tools themselves, but represents them in practical operation in foundry work, boiler work, marine work (both in and out of water), bridge construction, shipbuilding, marble and granite work, tank work, mining, painting, air hoists, speed recorders, locomotive bell ringers, etc. The press work and embossed work, the engravings and the paper combine to make a remarkably fine pamphlet.

**Pure Water for Steam Boilers.**—The Industrial Water Co., 15 Wall St., New York City, issues in a small pamphlet the three excellent papers by Mr. C. Herschel Koyl, which appeared recently in the *Railroad Gazette* on "The Work of Railroad Men on the Problem of Pure Water for Steam Boilers." These papers are followed by a short statement by the Industrial Water Company, as to the work done by the apparatus which it is now putting on the market. A number of installations have been at work for some time in purifying water for stationary plants, and the company is now beginning to make contracts with various railroads for the supply of apparatus for purifying locomotive feedwater. This apparatus not only softens water, removing the scale forming salts, but separates oil from condensed water.

**Hoisting and Conveying Apparatus.**—The Brown Hoisting & Conveying Machine Co., Cleveland, O., (Havemeyer Building, New York City), sends a new circular especially describing standard tubs and buckets to be used with their hoisting and conveying machinery. Automatic dumping tubs are shown for handling coal, ore, sand, etc., and these are illustrated and described quite thoroughly. An automatic rock bucket or skip having a capacity of 75 cubic feet and weighing 2,140 lbs., is shown, as is an automatic dumping shovel bucket which runs up in capacity to 5¼ tons and indeed a 9-ton bucket is included in the list, but neither weight, size nor price of this bucket is given.

**U. S. Metallic Packing.**—The United States Metallic Packing Co., 427 North Thirteenth St., Philadelphia, Pa., has issued a card giving instructions for the use and care of the U. S. metallic packing. This card has already been sent out to a number of motive power officers and it is the desire of the company that it should find a place in every railroad shop and roundhouse. It can be obtained therefore by addressing the company as above. The card describes the principles of construction and operation of the packing and tells how to apply it and how to take care of it.

**The Joseph Dixon Crucible Co.,** Jersey City, N. J., has issued a card giving specifications for the use of Dixon's silica-graphite paint for protecting structural steel and tin roofs. On this card are pictures of two buildings now being put up in New York city, the steel work of which is protected with paint.

#### Classification and Numbering of Passenger and Freight Equipment.\*

A casual examination of the Railway Equipment Register would readily convince the most skeptical that little regard has been given to the method or system in the classification and numbering of cars. Box, stock, coal, flat and other freight cars are numbered indiscriminately in small blocks, regardless of form, size or capacity, and then repeated as additional equipment has been acquired. In passenger equipment we notice the same procedure in many cases. No line of demarcation or means of identification by means of number, and often those in authority fill out vacant numbers with new cars, thereby sandwiching new and old, regardless of class. I have noticed numbers duplicated in passenger equipment; for instance, one road I recall, has a baggage car and a coach bearing same number, and a baggage car and parlor car likewise.

Did you ever notice the paucity of car numbers when your road purchased a thousand or so of new cars of any description, or acquired the same number of old cars by absorbing another road? If so, you will readily understand the situation. Rarely is there space to accommodate such an amount, much less five or ten thousand, which are not extravagant orders in the last two or three years. How often have you been compelled to change two or three hundred old cars in order to accommodate one thousand new cars, and as often as your company duplicated the order you would duplicate the changing, or else, you were compelled to put your new equipment in a series far removed from old equipment of similar nature. This inhibits the grouping of cars of same class, hence, we notice on many roads a certain number of box cars, followed in rotation by stock, coal, or flat as the case may be, then perhaps, some refrigerators, furniture or other special equipment, which in turn is followed by box, flat, stock or coal and so on. This system of numbering is the cause of intermittent changing, as it is a common desire to group the cars if possible. The mere mechanical (perhaps I should say artistic) part of such method, of course,

entails some cost, the major portion usually engendered by a junketing trip of a traveling painter who goes up the road 50 miles to-day to the gravel pit to change a car and as far down the road to-morrow to Pewee Valley to change another. Of course, it costs some money but it must be done to accommodate the new equipment. Is this all? Not by any means. Go ask the Superintendent of Car Service what this oft recurring changing of numbers means to his records and his force. He can tell you far better than I can, for my relations with that department are rather circumscribed, but such as it is, it has enabled me to approximate in a measure the interminable trouble such an insensate procedure would generate.

I am of the opinion that the proper parties to bring about a reform are the Master Car Builders and Superintendents of Car Service Associations. Suppose at the next meetings of these associations joint committees were appointed, how long do you think it would take them to formulate a plan universal in scope, simple as to details, easy as to execution? This would simplify the records, minimize labor in car accounting, as well as in car departments, and would undoubtedly mitigate many of the errors that unconsciously multiply in accounting in consequence of the indiscriminate mixing of numbers.

If some plan were adopted whereby each class of cars were given an individual series of numbers sufficiently ample for years to come, and each capacity or dimensions of any class were given fractional parts of such series, it would be but a short time until all those who are connected with the transportation and repairing of freight cars would be familiar with the classification and a simple nomination of a number would indicate the class and capacity or length of such car.

Now, what about passenger cars? Do the same thing exactly, only go deeper in detail. Let me suggest a plan that is feasible, easy of execution and infinitely satisfactory. One that will meet the requirements of an ordinary railway, or it can be amended to meet the requirements of any. Make this assignment:

Postal .....	1 to 99
Mail and Baggage.....	100 " 199
Baggage and Express.....	200 " 299
Special Horse .....	300 " 399
Combination .....	400 " 499
Second Class .....	500 " 599
First Class .....	600 " 799
Parlor .....	800 " 849
Diner .....	850 " 899
Special .....	900 " 999

Classify all your equipment as to style, age or condition, assigning the lower numbers in each series to the oldest or poorest cars and the higher numbers to the modern cars, and as far as practical in consonance with this plan, group your vestibule or other special design cars. In doing this you will soon become familiar with the class and condition of every car in your equipment. For instance, you are aware that postal No. 1 is supposed to be the smallest and poorest car, and as the numbers ascend the conditions improve. So with all the others. This enables every one connected with the maintenance and distribution of cars, to recognize at once the style and condition of any car nominated without reference to guide or record.

When you buy new equipment, which, of course, is usually modern, you are not at a loss for proper numbers.

If your road leases and operates some connecting line and letters the equipment in accordance with that of the lessor, but does not wish to number them accordingly, you can take the high limit number in each series and descend numbering in accord with the original design.

#### Car Inspection.

At a recent meeting of the St. Louis Railway Club Mr. J. J. Baulch, General Freight Agent of the Wiggins Ferry Co., and President of the Club, presented a written discussion of Mr. Millard's paper on "Car Inspection." A few notes from Mr. Baulch's discussion follow:

I take it for granted that every member of this Club who did not hear the excellent paper prepared and read by Mr. S. M. Dolan at the November, 1899, meeting, has since read it in the official proceedings and I believe that no one can question its value or the value of the department it represents. I am not assailing Mr. Dolan's paper nor the department represented in any but a friendly spirit, to the end that departmental lines may be thrown down and by getting together on a common ground, map out a better plan or a plan better suited to all requirements of the service. The present method is a vast improvement on the old style, and yet I am constrained to ask, "Does car inspection inspect?" Could it not be made much more effective and far-reaching in its effectiveness. Many claims are decided on the inspection record; many more could be if the inspection was satisfactory or thorough or covered every point from roof to rail, including shifting or shifted loads, improperly loaded cars, and the thousand and one details which necessitate much correspondence to draw the information out and not always in a very conclusive manner.

As object lessons and to support my argument, let me cite a few cases. Take, for instance, the inspection of tank cars loaded with oil, naphtha, gasoline and like commodities, is a source of much confusion, extra switching and correspondence; on these terminals 15 drops leakage per minute is the maximum that will be passed. Cases have been known where tanks covered with ice and snow were set back to delivering line account of leaking, which developed that the leakage was simply the thawing of ice without a vestige of oil. In other cases tanks have been

set back and tubs placed under cars to catch the oil, and not a drop discovered after 12 to 24 hours' delay. Other leaky tanks have been tinkered up with a piece of soap, a handful of waste and clay and the like, and cars passed without a question.

In the department covered by Mr. Dolan's paper, there are "M. C. B. rules governing the loading of lumber, logs and stone on open cars, and loading and carrying structural material, plates, rails, girders, etc." Detailed instructions with diagrams are printed monthly in the "Official Railway Equipment Register," but I question if an inspector ever sees a copy of these instructions; their duties, as I understand it, being confined to the running gear and condition of car. Why not the load? Why not print these rules in pamphlet form and distribute them anywhere and everywhere that will tend to educate the men and increase the efficiency of the service?

I wonder if there has ever been a school of instruction for inspectors or master car builders, master mechanics, or if chief joint inspectors ever call their men together and talk to and instruct them in their duties. The remedy is education. Educate the inspectors on common lines, hold the joint car inspector responsible for inspection on either or both sides of the river on all connections, and where there are discrepancies, call all concerned in and arrive at a conclusion which shall be final. Inspect the load on flat cars, or in any car, if the load seems to have shifted. The chief joint car inspector should sit in judgment on all cases and rigidly enforce the rules, and the Executive Committee should back him up. The same rights and privileges granted to trunk lines should be extended to switching lines to the end that claims other than for repairs, correspondence and clerical expense be thereby greatly reduced.

A case of shifted load is as follows: Cars 10777, St. Louis 32681 C. & N. W. from Wabash loaded with poles for Columbus, Tex., via I. M. & S.; cars were handed to I. M. & S., October 1, 1899, and were promptly set back, "load shifted"; cars were set on siding and were the subject of correspondence for some thirty days. One commercial agent writing, "we are advised that these cars were set back for shifting and placing loads in former condition." The statement is also made that "we have had no trouble since this lot was forwarded." I am quite sure they had no trouble with this lot, for after holding the cars some thirty days we finally delivered them to another connection, and they went to destination without question. Car 23086, Can. Pac., September 21, 1899, I. C. to St. L. P. & N., same date, loaded with lumber; load shifted, end broken. Set back by St. L. P. & N. 9-23, and by us returned to I. C. same day, account bad order, load shifted. I. C. fixed load and returned car 10-9 to St. L. P. & N. 10-10; again set back by St. L. P. & N. 10-21, and returned after much correspondence to I. C., who finally gave car and load to another connection, who took it, transferred load and returned empty. The extra switching and correspondence, tracing, etc., on this car was out of all reason, cost switching line fifty times its earning, and could have been obviated if joint car inspector had authority to order load transferred.

#### Northwestern Elevated, Chicago.

The Northwestern Elevated Railway, Chicago, was opened for traffic June 1, and local trains are now running regularly. In the morning and evening rush hours, trains are run at four-minute intervals, and the time between trains is increased to six, eight and twelve minutes during less busy hours of the day and up to midnight; between midnight and 5:30 a. m. trains are run every 35 minutes. The following stations are used, the others being as yet unfinished: Wilson Ave., Sheridan Road, Belmont Ave., Wrightwood Ave., Fullerton Ave., Halsted St., Sedgwick St., Division St., Chicago Ave. and Kinzie St.

A very full description of the location and construction of this road was published in the *Railroad Gazette* of May 1, and 8, 1896, the surveys having been made in 1894 and the work begun in the following year. The construction has been delayed at different times by lack of funds, strikes, and difficulties in getting extensions of time for completion from the Chicago City Council.

Only local trains are now running, but when additional generators at the power house are available for use, the express service will be started, July 4 being the time set. This is estimated to increase the capacity of the road from about 50,000 passengers a day to 60,000, and ultimately, with its present equipment of 147 cars, the capacity will be about 75,000 passengers a day; more than the Lake Street Elevated and considerably less than the capacity of the Metropolitan or the South Side Elevated.

To provide for express and local trains, there are four tracks from the northern terminus at Wilson Ave. to Chicago Ave., this portion of the road being built on a 50-ft. right-of-way owned by the road. From Chicago Ave. to the junction with the Union Loop at Fifth Ave. and Lake St. both express and local trains will run over the same tracks, this portion of the road being a double-track structure built through the streets. The total length of the road is about 6½ miles. Electric-traction and the third-rail system are used as on the other Chicago elevated roads, and trains will be run by motor cars at the head end.

The new road will get its business from what is considered one of the finest residence districts of Chicago, a district which heretofore has been but indifferently served by the cable and trolley roads.

\*Extracts from a paper by Jas. A. Gohen, Master Painter, C. C. & St. L. Ry. before the St. Louis Railway Club.



## An Old English Locomotive.

BY W. B. PALEY.

The engine, a photograph of which is shown herewith, was one of the first class of express passenger locomotives which the Great Northern Company had when the main line opened in 1852. There had been, of course, other passenger engines, parts of the line having been at work since 1848, but few were suitable for long fast runs on a line specially intended for high speed in competition with established rivals. No. 208 was one of 12 engines, numbered 203 to 214, built in 1852-1853 by Mr. R. W. Hawthorn, of Newcastle-on-Tyne, to the designs of Mr. Archibald Sturrock, the locomotive superintendent. It continued in service until 1881.

The engine in question is one of the 1852 lot. They had a transverse mid-feather in the firebox, a feature which, like the outside sandwich frames of wood between two slabs of iron, and the raised top to the outer firebox, was a repetition of the Great Western Company's broad-gauge practice at Swindon, where Mr. Sturrock had been Works Manager before going with the Great Northern. At Swindon, however, they did not give the engines domes; nor, as a rule, did Mr. Sturrock use them in passenger service, though he generally did for goods. The dome of No. 208 is Hawthorn's standard dome of that period, and, as will be seen, it was unusually large and ugly. Not all the twelve engines, however, had domes.

The compensating levers between the leading and driving wheels of the engine, and between the first two pairs of wheels of the tender, were a special feature of the Great Northern practice under Mr. Sturrock's rule. He used 150 lbs. steam pressure even in those early days, as did also in some instances Mr. McConnell on the Southern Division of the London & Northwestern and Mr. Kirtley on the Midland. It is rather remarkable, however, that all these lines afterward reduced their blowing-off point, and many years later than 1852 were using from 120 to 140 lbs. steam.

At the beginning of the year 1853, which may be taken as the average date of the engines of the 203-214 class,



An English Racer Built in 1862—Great Northern Railway.

the longest run on the Great Northern was from Hitchin to Peterborough with the 10 a. m. Scotch express. This 44½ miles of very straight and easy road was done in 58 minutes, the whole 76¼ miles from King's Cross, London, to Peterborough being run in 100 minutes. Of this, the first stage, 32 miles to Hitchin in 40 minutes, was much the finest piece of work, there being a couple of miles of 1 in 100 up from the start, followed by 10 more rising about 1 in 200. Only first-class passengers were taken, except to certain Yorkshire stations, express fares being charged. Engines like No. 208 worked all the best Great Northern expresses during Mr. Sturrock's time, till 1866. In fact, till he put on some 7-ft. single drivers of the same general type in 1860 they were, as a class, the only express engines on the line, as the term was then understood. Several interesting features may be seen on close inspection: The water gage is on the side of the firebox, and the tender has brake blocks only on the fireman's, or left-hand, side. The gong or bell is probably later than 1852; it was intended to be worked by a cord from the train in case of emergency. Many of them still remain. The tender held, by some accounts, 1,300 gallons; by others, 1,500, and probably about two (long) tons of coal.

The "large Hawthorns," as these engines were called, were immediately succeeded by Mr. Sturrock's big 7½-ft. single No. 215 (illustrated and described in the *Railroad Gazette* of November 15, 1895), which, however, remained the only specimen of its class.

Passenger Engine No. 208, Great Northern Railway, 1852-1881.

Diameter of cylinders.....	16 in.
Stroke of cylinders.....	22 in.
Distance between centers.....	2 ft. 7 in.
Steam ports.....	14 in. x 1½ in.
Exhaust ports.....	14 in. x 3½ in.
Diameter of blast pipe.....	4½ in.
Length of boiler.....	10 ft.
Diameter of boiler.....	4 ft.
Material of boiler.....	Yorkshire iron.
Thickness of plates.....	½ in.
Height of center from rail.....	6 ft. 5½ in.
Tubes, number.....	173
Length between tube plates.....	10 ft. 3-16 in.
Diameter outside.....	5 ft. 12 in.
Length of outer firebox.....	5 ft. 1½ in.
Breadth of outer firebox.....	4 ft. 6 in.
Length of inner firebox.....	3 ft. 5 in.
Breadth of inner firebox.....	3 ft. 5 in.
Heating surface of firebox, including mid-feather.....	114 sq. ft.
Heating surface of tubes.....	874.4 sq. ft.
" " total.....	988.4 sq. ft.
Grate area.....	15.5 sq. ft.

Diameter of carrying wheels.....	4 ft.
" " driving wheels.....	6 ft. 6 in.
Wheel base, leading to driving.....	7 ft. 9 in.
" " driving to trailing.....	7 ft. 3 in.
" " total.....	15 ft.
Width between frames.....	4 ft. 1 in.
Weight of engine, full.....	62,330 lbs.

## Electric Traction on the London Metropolitan Railroad.

In the *Railroad Gazette*, May 25, were published a map and general information pertaining to the underground railroads of London. Among them were the Metropolitan and Metropolitan District Railroads, a section of the latter, between Earl's Court and High Street, Kensington, being equipped for electrical experiments, which, it is expected, will determine the mode of applying electric power to the whole system. The following further information of the Metropolitan experiment is from *Engineering*, May 25:

A new train of carriages has been built by Messrs. Brown, Marshalls, and Co., of Birmingham, superior in space and fittings to those already in use on the line. It is 248 ft. in length, and weighs 182 tons. At each end there is a motor coach, one half of which is allotted to the use of the driver and his assistant. In this compartment is the controller, the various measuring instruments, the brake valve, and the Westinghouse air-compressor for the brakes. The controller is arranged horizontally, and not vertically as in a tramcar, and is turned with a steering wheel. Each motor coach is provided with four motors, the armatures being built directly on the axles of the two bogies. These motors are of 200 horse-power each at the maximum, and have four poles, so that each coach represents a possible 800 horse-power. Only one motor coach, the leading one, is in operation at a time. The train runs backwards and forwards between the two stations, the driver transferring himself from one end to the other at the completion of each trip. It is thus always drawn and never pushed. The current is of a pressure of 500 volts, and is transmitted from the generating station to the train and back to the generating station through 75-lb. channel-irons. These irons are carried on post-office insulators, which are supported on studs carried by the sleepers. The channels are 7½ in. outside the rails on each side, and a few inches above the rails. The current is conveyed to and from the channels by slippers, of which there

until after the general construction work is finished. Altogether, even at the best, the plans and records are more or less deficient. \* \* \*

The remedy for this state of affairs is a complete re-survey of the whole road, especially when it is an important road in a thickly settled country, with towns and villages at short intervals. On a railroad in the Central States, with which the writer was employed, it was decided to make a complete re-survey, the line having been recently acquired from another company; the few existing plans were incomplete and disconnected, a great amount of uncertainty existed as to the company's title to right of way and other property, and it was also proposed to expend a considerable sum in improving alignment and grades, accurate plans and profiles being needed for this purpose.

The railroad was first carefully measured from end to end, starting with zero at one terminus; a 100-ft. steel tape was used; each hundred-foot station was marked with white paint on the inside of the rail; every tenth station was referenced by an oak stake, 3 in. square, set 7½ ft. from the center line; stakes were also set at every mile, to be afterwards replaced by standard mile posts. After the measurement was completed, the line was gone over by the transit party. This party made a traverse of the line, not stopping to run tangents to intersection and put in curves, simply getting a record of the center line of the track, as they found it on the ground. On tangents, a sight would be taken on the track ahead as far as visible, and a straight line run, any deflection in the track being noted. The intersections of all township, section, quarter-section and property lines were obtained, the angles recorded, and distances measured to the nearest section or quarter-section corners, one member of the party being employed most of his time in looking up monuments. Plusses to points of intersection were obtained from the stations marked on rails by the measuring party. A record was made of the fences on each side of the right of way, and distance from the center line, this being often important as a means of determining a disputed boundary, where the fence had been in existence for a long period, as many deeds did not state the width of the right of way.

In villages and towns, the streets and lots adjacent to the company's property were located; all important factories, with the tracks leading to them, even if on a foreign railroad, and all sidings and structures on the company's property, particular attention being given to apparent encroachments, it being often found that buildings were wholly or partially on the company's property without any lease having been made. In making a survey through a village or town, the transit party was furnished with copies of the official plats, previously obtained at the county seat, to aid them in locating lines and streets.

The transit party measured all bridges, buildings, culverts and other structures, located all "Y" and railroad crossings, and public and private road crossings.

The level party followed, taking levels at every hundred-foot station, on top of tie, at ends of bridges, on railway crossings, of level of water in streams, and approximate levels of adjacent ground. Check levels were run and bench marks established at about half mile intervals, and oftener at places likely to be needed. Levels were connected with sea levels taken from United States Government surveys. The plans were drawn on white drawing paper in sheets, on a scale of 400 ft. to an inch, each sheet showing the line across a square mile section of land, a whole section or two adjoining half-sections being shown on the sheet.

The top of sheet was north in every case, all distance and angles obtained on the ground to section and property lines were recorded on the sheets. On top of each sheet was a plain title giving number of section, township and range.

All deeds and agreements were carefully gone over and compared with the plans, right of way colored in red, with name of grantor, page, and number of record book, and any conditions in deeds noted on plans. Villages and towns, where the scale of 400 ft. to an inch did not allow sufficient detail to be shown, were drawn also on a scale of 100 ft. to an inch, a large town often requiring several sheets, the same ground being covered, with less detail, on the smaller scale.

The sheets, when completed, were numbered and bound together by counties, the first page being devoted to title and the second to an index map of the county, showing the route of the railroad. The center line was drawn in red ink, all station numbers and plusses being also in red, distances and all lettering were shown in black. Before binding, all the plans were copied on tracing linen.

The profiles were drawn on the usual scale of 400 ft. to an inch horizontal, and 30 ft. to an inch vertical.

In cases where the engineer is unable to have a complete resurvey made, it will be advisable, as time permits, to make accurate surveys of all yards and station grounds, depending for general details of alignment outside these limits on the existing right of way maps.

If an accurate set of yard and station ground plans is obtained to start with, it will be a comparatively easy matter to keep them correct as changes are made. \* \* \*

A chart, showing graphically the different makes, weights and date when laid, of the rails in use should be made, and corrected as new rails are laid. A bridge book should be kept, devoting a page to each bridge or trestle, giving style, spans, size of stringers, when built, when repaired or rebuilt, conditions when inspected, etc. A record should be kept of all leases of the company's property, a copy of lease and plat filed. \* \* \* A condensed plan and profile may be prepared when time permits, showing a great amount of general information, useful in the track and operating departments.

## Engineering Records in the Railroad Operating Department.

BY C. E. CARTWRIGHT, M. CAN. SOC. C. E.

When, on completion of construction, a railroad is turned over to the operating department, it is generally found that the maps, profiles and other records are far less complete than generally supposed. \* \* \* Sidetracks, buildings, water tanks, etc., are seldom definitely located until construction is nearly complete, and not generally



### A Novel Wagon Dump Platform.

The St. Louis Terminal Railway Association built, a year or two ago, an elevated wagon platform yard near the business section of the city, to be used for dumping the contents of wagons directly into cars. In many large cities the material excavated from cellars, conduits, etc., as also the refuse from wrecked buildings, must be hauled in wagons to dumping grounds for a distance of from one to three miles, and sometimes even farther. This is an expensive haul, and the streets are often littered with droppings from the wagons, where the ordinances against this form of nuisance are not strictly enforced. It is for such material that the wagon dump here illustrated was built.

About 800 wagon loads a month are dumped into flat cars having hinged sideboards. The cars are then hauled to the bridge approaches of the Terminal Company's bridge over the Mississippi River, in the northern part of the city (the bridge built by the former Mer-

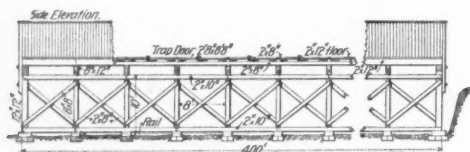


Fig. 1.—Wagon Dump—Longitudinal Section.

chants' Terminal Railway Company) and plowed off the cars with a Lidgerwood rapid unloader. Sometimes a few trainloads are used for widening an embankment for additional yard tracks in St. Louis or in East St. Louis. Several million cubic yards of this material can be used for filling in the low-lands owned by the Terminal and other railroad companies in East St. Louis. This made ground will ultimately be used for railroad yards. No scarcity of dumping grounds need, therefore, be feared for many years to come.

The Terminal Company charges 10 cents for a two-horse wagon load and 5 cents for a one-horse wagon load. Ten and 5-cent tickets are sold at the company's freight office, near the dump platform, and these tickets are collected by the foreman in charge of the dump. From two to four section men are detailed by the railroad company to help unload the wagons, open and close the trap-doors, etc.

This wagon dump has proved to be of much value to the city by greatly reducing the cost of removing the refuse, and at the same time the railroad is being supplied with much-needed material for its bridge approach-

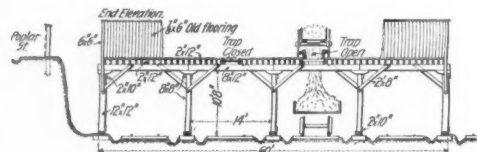


Fig. 2.—Wagon Dump—Cross Section.

es for making ground for extensions of its freight yards on both sides of the river.

The construction of the platform and the method of working are fully illustrated in the accompanying engravings. Fig. 1 shows the lay-out of the freight yard and the location of the dump platform. Fig. 2 shows the general method of working, and Fig. 3 some details of construction. The material used in building the platform is largely second-hand lumber obtained from trestles, bridges and buildings which have been torn down, so that the cost has been low, but the platform has been built in a substantial manner. It is in an out-of-the-way corner of the freight yard, where nothing more than a plain, substantial construction is needed.

The method of working the dump is simple. The loaded wagon is driven over the trap (see Fig. 2), the trap-doors are then opened, one side resting on the platform and

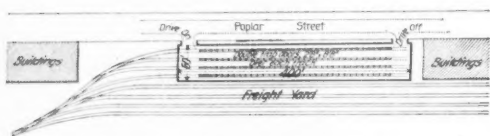


Fig. 3.—Wagon Dump at East St. Louis.

the other supported by the wheel of the wagon, thus forming a short chute directing the material through the trap hole when it is dumped from the cart or wagon. The trap-doors are not hinged; unhinged doors are more easily closed flush with the platform floor on account of the earth and gravel which lodge on the supports of the trap-doors, and this arrangement also saves the cost of frequent breakage of hinges due to heavily loaded wagons passing over them.

This wagon dump has given general satisfaction to contractors as well as to the railroad company. It was built as an experiment, but is now considered a permanent structure.

### Development of Modern Transportation in a Desert.

Recent European exchanges describe a novel railroad enterprise, a Russian railroad having undertaken to improve camel transport over a thinly settled Asiatic region as a preliminary experiment to afford information as to the probability that sufficient traffic can be created to warrant the construction of a railroad to (not through) the desert.

The arid country of Siberia lies south of the Siberian Railroad, and so far south that a railroad line parallel to that railroad extends from the Volga eastward 264 miles to Uralsk, a town on the Ural River, 260 miles due north of the Caspian Sea and about 165 miles south of the western outlet of the Siberian Railroad. It is proposed to extend this railroad some hundreds of miles northeastward near the border of the arid country to a junction with the Siberian Railroad at Nicolajevsk. To the south and east lies the immense trans-Caspian desert, which, however, has some water courses and a small population at intervals where there is pasturage. The little intercourse with the north has been effected by caravans of camels, which are able to carry about 360 lbs. each, but could move only in summer, when there is grass for grazing. To make the railroad profitable this caravan traffic should be diverted to it; and to do this a wagon route was established from the southern end of the Sea of Aral northwestward between that sea and the Caspian, some 665 miles to Uralsk.

For this route 42 stations with wells were established, and the camels are used with wagons as draught animals instead of beasts of burden, with of course much greater efficiency. In order that the route may be open in winter as well as summer, it has been made worth the while of the scanty population to put up hay and sell to the stations. These stations also established gardens where water was to be had and became object lessons in agriculture and centers of civilization for the semi-barbarous nomads of the country. The time on this route is about half that of the old caravans, and so much cheaper that products are now interchanged which formerly could not be moved on account of the cost, as fish (dried, doubtless) from the Sea of Aral, and licorice root. The route to Uralsk, however, is much longer than that to the Caspian, and it is not yet certain that "camel express" will prove a profitable enterprise. The whole reminds one of the condition of things between the Missouri and the Pacific in the days before the railroads, when the pony express was followed by stage lines, and the little stations in the wilderness and the desert became the first outposts of civilization.

### TECHNICAL.

#### Manufacturing and Business.

The sale by auction of the plant and personal property of the John Stephenson Company, which was advertised by Albert A. Wilcox, the Receiver, to take place on the premises at Bay Way, near Elizabeth, N. J., on April 25, was adjourned several times for the best interests of those concerned and it has now been definitely decided to hold the sale on Tuesday, June 12, at 2 p. m.

The Dressel Railway Lamp Works, 3876 Park Ave., New York City, have bought the entire plant and good will of E. L. Hall, who for many years conducted the Hall Headlight Co., of Philadelphia. The plant has been consolidated with that of the Dressel Railway Lamp Works, in New York and a number of the employees of Mr. Hall have been engaged by the Dressel works. The Dressel Railway Lamp Works report a steadily increasing business. Chas. H. Dressel, Vice-President, who has been seriously ill for nearly 10 weeks, has recovered.

#### Iron and Steel.

The rail department of the National Steel Co., at Youngstown, O., has been put in operation on an order for 70-lb. rails.

The National Charcoal, Iron & Steel Co., of Pittsburgh, Pa., has been incorporated in Delaware with a capital of \$100,000. James F. Fawcett, General Manager of the Glenwood tin dipping plant; Charles B. Cushwa, Superintendent of the Republic Iron Works, and Wm. A. McDonald, of the same works, are interested.

The International Iron Structural Construction Co., of Kansas City, Mo., has been incorporated in Delaware, with a capital of \$7,000,000, to do railroad work in the West.

The American Steel & Wire Co. closed three of the big Newburg mills at Cleveland, O., on June 1, throwing about 1,000 men out of work.

The plate mills, slab mills, open-hearth furnace and gas houses of the Illinois Steel Company's mills at South Chicago were closed June 2. Work in the rail mills will be continued.

The Minaca Improvement Co., Ltd., of Chihuahua, Mexico, wants prices in the New York market on 10,000 ft. of 4-in. iron pipe; also on a tank of 60,000 gallons capacity, with corresponding pump. Further particulars can be had from William Dale, care of the above company, No. 164 Avenida de la Independencia.

C. A. Painter has resigned as Vice-President of the American Steel Hoop Co.

According to the *Engineer*, of London, Chinese pig iron is at present sold in Japan at \$5 per ton less than that imported from England. Chinese iron is also to be used in the Government foundry at Yawata Mura, which is about to begin work on small rails and sheet iron.

Benjamin F. Jones, Jr., for many years Treasurer of

the Jones & Laughlin's, Ltd., has been elected chairman of the reorganized company to succeed his father. William C. Moreland, Jr., heretofore Auditor, has become Secretary. William L. Jones, heretofore General Manager, has been re-elected, and Chas. C. Briggs, Sales Agent; James B. Laughlin, formerly Manager of the Eliza blast furnaces, and Rollin Gerry have been made Managers. Thomas K. Laughlin is elected Assistant Treasurer, also a member of the Board of Managers.

The Japanese Government has recently placed an order for 1,400 tons of steel plate girder bridges with Okura & Co., of Tokio, at \$123,945. Other bidders representing American and European mills were Mitani & Co., \$124,255; Takata & Co., New York, \$125,680; Isono & Co., \$127,850, and Illies & Co., \$128,780. The specifications call for 64 spans of 40 ft., 28 spans of 20 ft., 17 spans of 60 ft., 15 spans of 70 ft., 11 spans of 30 ft., and 10 spans of 50 ft. each. Three places for delivery were specified, namely, Yokohama, Kobe and Kagoshima.

#### Track Maintenance in Prussia.

The Prussian Minister of Public Works has instituted an inquiry into the effect of different kinds of ballast on the maintenance of track, observations and records to be made on the lines with heaviest traffic and most numerous fast trains.

#### The London Underground Electric Railroads.

The Central London Railway from Shepherd's Bush to the Royal Exchange, of which we lately gave some details, is now finished. The steam and electric generating plant at Shepherd's Bush power house have been running and trial runs over the line have been made.

The electrical section of the Metropolitan Railway has also been completed, and on May 18 the new experimental train with a motor car at each end was running for press representatives. The total weight of the empty train is 180 tons (54 tons per motor carriage and 18 tons per passenger coach). This is some 30 tons heavier than those running on the Central London line. The train was to be brought into regular service for public passengers on Monday, May 21. The gradients of the Earl's Court-High street, Kensington, section, are very heavy and the train will have to undergo a severe test. The electrical equipment of this section has been carried out without in any way interfering with the passage of the ordinary traffic over the rails. Messrs. Brown Marshalls, of Birmingham, supplied the train itself, and Messrs. Siemens Bros., of London, the electrical equipment.

#### English Electric Car Works.

The large amount of work open for electric tramcars in England has led to the establishment of another car shop. Mr. Carl Busch, son of the famous Continental car builder, is at the head of a syndicate which has purchased the Old Castle Ironworks, at Wellington, and is laying them out on up-to-date principles for the production of 1,000 electric cars per annum, employing 800 workpeople.

#### Oil Holes in Brake Cylinders Abolished.

The Westinghouse Air Brake Company has issued the following circular: "After due consideration of the reports we have received from our traveling inspectors, and from other air-brake men especially well qualified by their experience to pass judgment upon the question at issue, it has been determined to discontinue the use of the oil hole in connection with all of our standard brake cylinders manufactured subsequent to July 1, 1900. For this reason, orders for apparatus to be shipped after that date, which cover or include brake cylinders should clearly specify that oil holes are desired, if such should be the case. The principal reason that has led to this important decision is the almost universal use of this opening as a make-shift for the proper cleaning and lubrication of brake cylinders. Quantities of low-grade oil are often poured into the cylinders, through these oil holes, and eventually carried over into the triple valves without much, if any, permanent benefit to the packing leathers, which it is intended to soften, and to the great detriment of the triple valves, not only because of interference with their free and proper action, but also because of the resultant deterioration of the rubber valve seats and gaskets."

#### The King Bridge Company.

We are officially informed that the King Bridge Co. of Cleveland, O., are in no way connected, nor likely to be, with the new American Bridge Co., but that they expect to make extensive additions to their plant and equipment, which is already very large.

#### Independent Motors in New York City.

In the extracts from President Vreeland's statement to the shareholders of the Metropolitan Street Railway Company, which appeared in the *Railroad Gazette* last week, page 359, mention was made of the fact that storage battery cars will soon be put in service on the Thirty-fourth street line of that system. The experiment with the air power cars is, however, to be continued. Apparently, one idea underlying the trial of storage batteries is that the electric power plant of the Metropolitan will be able to furnish all the current necessary for these as well as for the lines directly operated. Thus it might be possible to run the power plant steadily at a uniform load and so realize a considerable economy in producing current.

#### A New Car Wheel Company.

The Keystone Car Wheel Co. has been formed in Pittsburgh, with a capital of \$200,000, and it is understood that plans are under consideration for a plant with a ca-



capacity of from 300 to 350 car wheels a day. The company, according to report, has bought 10 acres near Homestead, on the Monongahela River near its plant, the main building of which will be 300 x 100 ft. Chas. V. Slocum, 1201 Park Bldg., Pittsburgh, formerly Treasurer and Manager of the Pennsylvania Car Wheel Co., is the principal organizer. Among others interested are Wm. L. Elkins, Assistant Treasurer of the Consolidated Traction Co., Pittsburgh; Wm. W. Lobdell, President of the Lobdell Car Wheel Co., Wilmington, Del.; Louis B. Whitney, formerly of A. Whitney & Sons, of Philadelphia; Chas. A. Otis, Jr., of Otis, Hough & Co., iron and steel merchants, of Cleveland, O.

#### Italian and French Locomotive Orders.

The Mediterranean System, Italian Railroads, has placed an order for 60 locomotives with the Wien Neustaedter Locomotive Works of Vienna, and French railroad companies have placed an order for 30 locomotives with the Vienna Locomotive Works, and another order for 30 engines with the Locomotive Works of the Austrian State Railroads of Vienna.

The Mediterranean Company (Societa Italiana per le Strade Ferrate del Mediterraneo, with headquarters at Milan), will soon be in the market for an additional number of locomotives. The rolling stock of this company consisted, at the end of 1899, of 1,394 locomotives, 3,826 passenger, and 24,176 freight cars. The gage is 1.435 m. Count A. Sanseverino Vimercati, at Milan, is the President of the Company; Comm. Ing. M. Massa, of Milan, is Director General; and Comm. Ing. G. Oliva, of Milan, Chief Mechanical Engineer.

#### Automatic Couplers.

The Southern Pacific Co. has just issued the following circular: "To place this company in a position to comply with the requirements of the United States law, which takes effect August 1, 1900, prescribing automatic couplers on cars used in interstate traffic, we beg to inform you that after July 1, 1900, it will not under any circumstances receive from connections cars that are not equipped as required by law."

#### Nicaragua Canal.

The Nicaragua Canal Bill has been postponed by the Senate until the second Monday in December. This was done at the request of Mr. Morgan, chairman of the Committee on Inter-oceanic Canals. Senator Morgan said he made the request because he realized the impossibility of obtaining consideration of the bill this session.

#### THE SCRAP HEAP.

##### Notes.

The wages of yardmen of the Lehigh Valley at Jersey City, N. J., have been increased about 10 per cent.

The New York Central & Hudson River is gradually abolishing the use of brass checks for most of the local baggage carried over the road. In place of these, card checks are being introduced, the card being attached to the trunk by putting it in a brass plate or shell, which is secured by a strap in the usual way. Between cities where there is a large and steady business, reversible brass checks are continued in use.

The hospital fund of the Union Pacific road, amounting to about \$50,000, is now being distributed to the employees who contributed to it. About 12,000 men will participate in the distribution. The hospital system of the road was established in 1881 and hospitals were soon after built at Denver and at Ogden. In 1896 the Telegraphers' Brotherhood charged mismanagement and after considerable discussion the receivers appointed by the court, who were in charge of the road, closed up the fund. The hospital buildings were sold.

Press dispatches from Buffalo, June 4, report the end of the strike of car repairers, yardmen and freight handlers in that city. These strikes began, at the same time with that on the New York Central, about six weeks ago. All the roads except the Central resisted the demands of the strikers, or granted them to only a slight extent, and the strikes have been dragging along ever since. In the freight houses the companies appear to have substantially maintained their ground, but in the other departments it is stated that many of the old men will be taken back and will receive some increase in pay.

A passenger train on the International & Great Northern was stopped by robbers on the night of June 3, near Pryor's, Tex., and the engineer was compelled to move the mail and baggage cars forward about 2 miles, leaving the passenger cars behind. The robbers then ordered Express Messenger Rutherford to let them into his car, and on his refusal they compelled the fireman to break a hole in the end of the car. The messenger succeeded in firing at the robbers without hurting the fireman, but did not hit them. Considerable confusion followed, in the midst of which Engineer Rich got into the cab unnoticed and pulled the cars away, leaving the robbers behind. Help was secured at the next station.

The United States Circuit Court of Appeals has decided in favor of the Railroad Commission of Georgia in the suit of that body against the Southern Express Company to compel the Express Company to furnish the internal revenue stamps required on bills of lading for shipments by express in the State of Georgia. The present decision reverses the Lower Court. It is based on the law of Georgia empowering the Commission to prescribe rates for intra-state express business, upholding

that law. It justifies the Commission in compelling the Express Company to continue in force its old rates while the cost of the service to itself is increased by the amount paid for revenue stamps.

#### Traffic Notes.

The Southern freight classification has been revised, the revision going into effect June 1. Of the 2,500 commodities named in the classification about 375 have been changed to a higher class.

The Pennsylvania Railroad has opened a large freight station at Williamsburg (Brooklyn), N. Y. Cars are taken to this station on floats. The dock is 654 ft. long and 84 ft. wide. It is covered with a shed containing 70,000 sq. ft. of floor space.

The Seaboard Air Line, which has just completed its line to Richmond and has opened a new through passenger line between Richmond and Florida, announces that hereafter it will not make differential passenger fares, but will ask the same prices as those charged over other lines between Washington and the South.

#### Street Railroads in Paris.

Of the 39 street railroads in and around Paris, 10 use steam motors in one form or another. Two employ ordinary locomotives, two the Lamm and Francy methods; four employ the Serpollet system, and two the Rowan system. Other lines use the Mekarski system of compressed air. Four employ self-contained cars, operated with compressed air; six use cars worked by electrical accumulators and two with combined accumulators and overhead wires. One is worked electrically by means of a surface contact, another is operated by means of overhead wires, and partly by conduit, and still another is propelled by means of a cable.

#### A Trans-Isthmian Line in Honduras.

The President of Honduras and his Cabinet have signed a concession transferring the property of this railroad to the Astor Syndicate. The road runs from Puerto Cortez on the north coast, south 37 miles to Chamelico, and is at present in a very bad condition. The syndicate proposes to extend it on to Amapala, on the Pacific, in all about 150 miles. The concession is subject to approval of the Congress which was to be in special session May 17.

#### The Brussels-Antwerp Electric Railroad.

In the estimates now before the Chambers the Government has provided for an electric railroad between Brussels and Antwerp. The plan contemplates running trains between these cities, 27 miles, without intermediate stop, at 62 miles an hour. It is estimated that traffic will quickly require running trains at five-minute intervals. Carriages will be designated as first and second-class respectively, the Government reserving the right to establish rates. These rates are expected to be about 25 per cent. less than the fares now charged by the State Railroad. The trains will carry no merchandise or checked baggage. The bill of franchise asks for a concession for sixty years, the railroad and its entire equipment then to revert to the State. Government reserves, however, the right to buy the road at the expiration of the first ten years or sooner. The cost of construction and equipment is estimated at \$7,720,000.

#### Using the Resources of Civilization.

In Germany recently a great fire broke out in a small town, to which the fire companies of all the neighboring towns were sent in all haste. While two of these were on their way a limited express which would pass near the burning town came in sight. This was signaled to stop at a road crossing, the engines and firemen were put aboard, and the train was stopped again to let them off, with the result that the express arrived three-quarters of an hour late. What happened to the fire we are not informed.

#### Another Belgian Railroad.

Besides the electric railroad between Brussels and Antwerp, for through travel only, it is reported that the Belgian State Railroad management will build an entirely new line, by a shorter route than the old one, between Brussels and Ghent, 31 miles, at a cost of \$3,000,000. This will be built to be worked by steam, but with reference to its transformation ultimately into an electric railroad.

#### Hours of Work in Alsace-Lorraine.

Recently great care has been taken in Germany to see that railroad employees are not overworked, and the average day's work has been shortened and more entire days of rest granted. Now the management of the Alsace-Lorraine Railroads has issued a circular in which it says that the men must remember that this greater amount of rest was given in order to make sure that the men should be fresh and capable when in service. But it learns that some employees instead of resting spend their spare time in hard work either for themselves or for third persons, while others spend a good part of it in patronizing taverns, with the result that they are more exhausted when they come back to their railroad service than if they had been kept steadily at their duties. They are warned that this will never do.

#### A Car for Invalids.

The Saxon State Railroads have ordered the construction of an invalid car for the transportation of patients who can afford the expense of a whole car. It is on two four-wheeled trucks with a side passage from end to end and consists of three compartments, the central one being the sick room, the others for physicians and attendants. Cooking apparatus and a refrigerator are part of the furnishing, and special attention has been given to the springs, to prevent, so far as possible, all shocks. It is designed so as to pass over all standard gage roads from the Russian border and Constantinople to the extremes of Italy and France, and when not required at home may be hired for use on any railroad.

#### The Railroads of Mr. Rhodes.

"The commercial world at the Cape is at this moment very much irritated against Mr. Cecil Rhodes. Mr. Rhodes has made an agreement with the German Government tending towards building a railroad which shall cross Southwest German Africa, starting from the Great Fish Bay in Angola (Portuguese territory) and reaching Rhodesia. The route from London to Bulawayo would be shortened 1,300 miles. Naturally, the interests at the Cape would suffer enormously from this enterprise, and the President of the Chamber of Commerce at Cape Town has declared that it is the duty of all commercial interests in Cape Colony to oppose themselves to the projects of Mr. Cecil Rhodes. But in Germany it is suspected that Mr. Rhodes has been thinking only of his own interests and the interests of the two financial companies to which the railroad concession has been given.

The Germans are asking themselves if this railroad would not endanger the German colony in southwest Africa." This is from a French journal and is given for what it is worth.

#### Another Decision on the Valley Stream Case.

The recent decision of Justice Marean, in a suit against the Long Island Railroad (*Railroad Gazette*, May 25, p. 339), holding that the highway crossing sign at Valley Stream, where a number of persons in a coach were killed in 1897, was a good and sufficient warning, appears to have been nullified. In another suit (*Henn vs. L. I.*) the Appellate Division of the Supreme Court has now decided that the sign did not conform to the law. The decision, which affects all the cases and reverses also a recent decision by Justice Smith, is written by Justice Hirschberg, and all his associates in the Appellate Division concur. While finding that there is no ground for reversal of the verdict in Miss Henn's favor, the court reduces the amount awarded her from \$7,500 to \$3,500. Commenting on the absence of a sign at the point where the accident occurred, the court says:

"The sign of a railroad crossing required by law, and so designed and located as to challenge attention and force itself upon the sight, was wholly absent, and in its place was substituted a trifling affair, in another and totally different situation from that required by statute, and which proved wholly worthless and ineffective. Referring to this sign, the presiding justice of this court wrote in the Lewis case that 'the accident resulted almost wholly from the company's neglect to comply with a positive provision of the railroad law, a disobedience of which should be visited in any case with the severest condemnation of the court.' In the Court of Appeals in that case Judge Martin considered the question of the defendant's negligence in respect to the crossing sign, although the necessity for its determination was not then presented, but in order to guide future trials of the cases arising from this accident, and clearly intimated that in the case of one unfamiliar with the crossing, the conduct of the company exhibited actionable negligence. The proof shows that there are 6,000 crossing signs in this State of the general character of the one furnished by the defendant; but, of course, it does not show how many deaths are chargeable to the wilful and general violation of the law which is involved. But in any event, it would be monstrous to hold as matter of law that the defendant should be absolved from responsibility for the direct consequences of an infraction of the law, merely because such deviations from the requirements of the statute are open, defiant and common."

#### New York Rapid Transit.

The contract for furnishing the structural iron and steel which will be used in the Rapid Transit Railroad has been finally executed with the American Bridge Co. The Carnegie Co., however, will furnish the raw material for this work to the American Bridge Co.

The contract calls for 21,729 tons of steel beam, 20,147 tons of riveted steel, 23,168 tons of steel viaduct, 245,514 ft. of rails for tracks in the subway and 59,666 ft. of rails for tracks on the viaducts.

Wm. Barclay Parsons, Chief Engineer of the Rapid Transit Commission, has under consideration a plan to shorten the Rapid Transit Tunnel R. R. by 1,000 ft. in the neighborhood of Fort George.

#### The Pennsylvania's Proposed Docks in New York Harbor.

On recommendation of the Harbor Line Board at New York, the War Department has granted the application of the Pennsylvania R. R. to change the harbor lines on the west side of Upper New York Bay, opposite Greenville, N. J. The company is having plans made to build piers, freight yards and warehouses which will ultimately extend 6,300 ft. from the new bulkhead line out to deep water. The new bulkhead line will be 2,000 ft. out from the old line. The company owns 3,700 ft. of water front and has already let a contract to P. Sanford Ross, of Jersey City, for building a timber bulkhead 2,400 ft. long and for filling in back of it. The contract also calls for a channel 30 ft. deep and 6,600 ft. long from the new bulkhead line out to deep water. A branch line of railroad about six miles long is building from Waverly west of Newark to the new docks at Greenville, and all coal trains will be diverted from the main line at Waverly and sent direct to the new piers, of which there will eventually be about 10. About two-thirds of the branch line is finished out across Newark Bay and the Meadows, and to reach the new ground the tracks will have to be carried over the Morris & Essex Canal, the Jersey Central R. R. and the Black Tom wharves back of Liberty Island, on a viaduct 40 ft. high.

#### The Celebration of the Seaboard Air Line.

Last week the formal opening of the Seaboard Air Line was celebrated with great state. Two special trains were run to Tampa and back and the festivities culminated in a banquet at Richmond. These trains carried a distinguished company of capitalists, railroad men and other guests. A number of stops were made on the way for more or less important ceremonies, including speeches, luncheons, etc. On the return to Richmond, June 2, a golden spike was driven to mark the connection of the new line with the Richmond, Fredericksburg & Potomac, and the guests were taken in procession through the streets. Ceremonies were held in the Public Square, with addresses by the Governor, the Mayor of Richmond, President Williams, of the Seaboard Air Line, and others. The banquet in the evening is described as having been the most magnificent public banquet ever given in this country. Undoubtedly it was magnificent in size, decorations, distinction of the guests and quality of the speeches.

#### The Dover & Ostend Steamboat Line.

According to the (London) *Railway News* the steamboats plying between Dover and Ostend, which are subsidized by the Belgian Government, have cost the taxpayers of that country during the past 19 years over \$200,000 a year. It appears that the line is maintained for two principal purposes—to draw British tourists to Belgium and to carry Belgian goods into Great Britain at very low rates. The steamers are as fine as any running between England and the Continent, and excellent service is maintained. The boats do not carry coarse freight.

#### Projected Railroad in the French Colony of Dahomey, West Africa.

It is proposed by the French colony of Dahomey, West Africa, to build a railroad 435 miles long from the coast to the Niger River, to traverse the richest regions of the colony. The country exports annually more than 300,000 tons of oil and palm nuts and yields the karite, kola, caoutchouc, coffee, cacao, vanilla, cotton, tobacco, yam, maize, honey, and numerous fruits. The colony is only from 75 to 90 miles from east to west, while it extends 495 to 560 miles back from the coast to the rapids of the Middle Niger. The road now projected would gather



up the products of the soil, as well as cattle, sheep and horses, so numerous in the northern districts. At its terminus it would receive the products of the banks of the Niger. Cotonou is the sole port of Dahomey possessing landing facilities, and is the only one in communication with the interior, by means of Lake Nokoue, with Porto Novo, the capital and largest city of the colony, and with the small port of Calavi, which has a certain commercial importance. The projected railroad, starting from Cotonou, will first traverse the fertile regions toward Paon. From Paon the line will be extended toward Allada and Toffo, to run through wooded country. On the other side of Toffo the line would penetrate the kingdom of Abomey, which it would cross to Atcheribe, the best point for crossing the Zou River. The building of this road, if not begun by a company in a short time, will be done directly by the colony by means of a loan, with its resources as security. Should a company take a concession for the building of the road, its exploitation will also be confided to it.

#### Technical Schools.

Washington University, St. Louis, Mo., has just received as a gift the whole of the \$3,000,000 stock of the "Cupples station," situated at Seventh and Spruce Sts., St. Louis, the gifters being Samuel Cupples and Robert S. Brookings. There will be two funds of a million and a half each, to be known by the names of their respective givers.

"Cupples station" was described in the *Railroad Gazette* of July 10, 1891, and will be remembered by some of our readers as a very large seven-story building, near the old Union passenger station in St. Louis, occupied by wholesale stores and equipped with elevators and railroad tracks, so that it is not only a block of stores but is also a freight station. The tracks connect with the main line of the Terminal Railroad Association and the switching is done by the Terminal engines. Freight is billed to and from this freight house the same as to or from any railroad station.

The company owning the building, of which Mr. Cupples and Mr. Brookings appear to have been the only stockholders, derives its income almost wholly from rents. Last year the net earnings, after paying expenses and taxes, were \$238,184, out of which was paid \$135,000 as interest, at 4½ per cent., on \$3,000,000 of bonds. The stock consists of \$2,000,000 common and \$1,000,000 preferred, and the dividends on this amounted to \$70,000, being 5 per cent. on the preferred and 1 per cent. on the common. Mr. Cupples, now 69 years old, has been a woodenware merchant in St. Louis for nearly half a century, and the Cupples building was put up primarily for accommodating his business. Mr. Brookings has been associated with Mr. Cupples many years. He is President of the Board of Trustees of the University, and has before made large gifts to the University. A reason given for the transfer of the stock at this time is that Mr. Cupples is lying at the point of death, and wishes the transfer to be legal and binding before his death, so that there can be no question of a broken will. Mr. Brookings, who has been receiving a salary of \$25,000 a year as manager of the Terminal Association, has volunteered to give up his salary and serve in the same capacity for the University without pay.

Purdue University.—On May 28, the Department of Mechanical Engineering at Purdue University dedicated the 2,000,000-gallon water works pumping engine recently presented to the laboratory by the City of Lafayette. This pumping engine was built by the Clapp & Jones Manufacturing Co., of Hudson, N. Y., in 1875, and is a fine example of a duplex walking beam pump. As installed in the laboratory, in addition to its historical value, it will furnish an ample supply of water for hydraulic experiments.

#### LOCOMOTIVE BUILDING.

The Maine Central has ordered the four mogul engines referred to May 18 from the Schenectady Locomotive Works.

The Ohio River is having one locomotive built by the Pittsburgh Locomotive & Car Works.

#### CAR BUILDING.

The Denver & Rio Grande Western has ordered 50 steel double hopper gondola cars of 100,000 lbs. capacity from the Pressed Steel Car Co.

The Northern Pacific has ordered 1,000 box cars from the Pressed Steel Car Co. They will have steel underframing and wooden superstructure.

#### BRIDGE BUILDING.

ALBUQUERQUE, N. M.—A viaduct is proposed across First St. at a cost of about \$15,000. An election will be held to decide if it shall be built.

BILOXI, MISS.—Bids are reported being received for the combination bridge over Back Bay. (May 4, p. 293.)

BUFFALO, N. Y.—The Park Board is having plans made for a bridge over Park Lake, in Delaware Park. It will cost about \$60,000. G. H. Selkirk, Secretary.

BURLINGTON, VT.—The Rutland has let contracts for five steel bridges on the Rutland-Canadian extension. One will be 450 ft. long over the Winooski River; three will be draw span bridges 196 ft. long each, over various channels at Lake Champlain; the other is 80 ft.

CALIFORNIA, O.—The contract for the superstructure of the steel truss bridge approach to the Intake Pier for the Department of Waterworks, Cincinnati, is let to the Brackett Bridge Co., of Cincinnati, at \$19,300. The contract calls for 403,500 lbs. of steel. The 16 other bids ran up to \$23,000. The Chief Engineer's approximate estimate was \$20,157.

CARNEGIE, PA.—The West End Traction Co., of Pittsburgh, has applied for a charter for the Carnegie Bridge Co. to build a bridge over Chartiers Creek between Carnegie and Heidelberg.

CHICAGO, ILL.—The Chicago Terminal Transfer Co. has given notice of its acceptance of the ordinance, passed a few weeks ago, which provides that the trucks be elevated from Rockwell St. to West Fortieth Ave., about 2½ miles. The work will cost about \$750,000. Subways are provided for at Washtenaw, Fairfield, California, Francisco, Sacramento, Albany, Kedzie, Homan, Central Park and Springfield Aves., Douglas Boulevard, West Fortieth, Forty-first and Forty-second Aves., and Forty-third and Forty-fourth Aves. when opened.

The Board of Trustees of the Sanitary District contemplates building bridges over the Chicago River at State, Randolph, Harrison, Main and Eighteenth Sts. The bridges are to have a clear opening of 140 ft. in the center. It is estimated that 21 bascule bridges proposed for the next two years will cost more than \$3,000,000.

CLEVELAND, O.—In addition to other bonds, the city is offering for sale on June 26, 50,000 bridge bonds. Chas. P. Salen, City Auditor.

CONNELLSVILLE, PA.—The Connellsville & Uniontown Street Ry. Co. has petitioned the Council for permission to build a bridge over the Youghiogheny River at the foot of Apple St. to New Haven. This company was for some time negotiating with the Youghiogheny Bridge Co. to use its bridge.

DAVENPORT, WASH.—The Commissioners of Lincoln and Stevens Counties have decided to build a bridge across the Spokane River at the site of the former bridge.

DOWNTON, PA.—The Pennsylvania, according to report, will build a bridge over the tracks in the western part of this town.

DUBUQUE, IA.—We are informed that plans are being made for the bridge proposed by the Dubuque & Wisconsin Bridge Co. over the Mississippi River. It will be an iron structure, about 1,400 ft. long.

DULUTH, MINN.—The Common Council has appointed a commission consisting of two Aldermen, the Mayor, City Attorney and Thomas F. McGilray, City Engineer, to report on the suspended bridge described in our issue of Jan. 26, p. 52.

EASTON, PA.—Lehigh County has in contemplation a bridge over Lehigh River and the Lehigh Valley and Jersey Central Railroad tracks and the Crane Iron Works. The plans call for a structure 1,197 ft. long, 16 ft. roadway and a 6-ft. sidewalk.

EPHRATA, PA.—Wm. B. Given, Columbia, Pa., President of the Lansing, Mechanicsburg & New Holland Electric Ry., is reported considering estimates for steel bridges over the Conestoga River. One will be 225 ft. long and the other 130 ft., located at Eden and Ephrata.

FAIRMOUNT, W. VA.—The Intramural Bridge Co., recently incorporated, proposes to build a steel viaduct about 400 ft. long over Coal Run to connect the west and south sides. T. L. Burchinal, Fairmount, is one of the incorporators.

FARMINGTON, MO.—Bids are asked until June 11, according to report, for a 130-ft. single span steel bridge over Big River, with two steel approaches 60 and 40 ft. each. Samuel I. Asbury, County Surveyor.

FORT CASWELL, N. C.—Sealed bids are wanted, June 18, for building a wharf and railroad track at this post. Address P. P. Bishop, Quartermaster.

GOLDENDALE, WASH.—Bids are wanted until July 2 by J. W. Butler, County Auditor, Klickitat County, for a bridge across Swale Creek, at Richards Place.

GRAFTON, N. D.—A bill is before the U. S. Senate to authorize the Cooper Pontoon Bridge Co. to build a pontoon draw-span bridge across the Red River of the North between Marshall County, Minn., and South Dakota.

HATFIELD, MASS.—The Northampton & Amherst Street Ry. Co., of North Amherst, will build an iron bridge 90 x 22 ft. for street railroad and highway travel over Mill River.

HOLYOKE, MASS.—The Board of Public Works will receive bids, June 15, for a metal bridge; also for a masonry bridge on Cabot St., over the Second Level Canal. (March 16, p. 176.)

HUMBERSTONE, ONT.—The contract for the superstructure of the bridge over the Welland Canal for the Dominion Department of Railways and Canals is let to the Hamilton Bridge Works, Hamilton, Ont. Messrs. Rowan & Elliott, of St. Catharines, Ont., will build the substructure. (March 30, p. 208.)

JACKSON, MICH.—We are informed that the Michigan Central has no intention of building new shops at Jackson Junction, as recently reported.

KINGSTON, TENN.—The Committee on Interstate and Foreign Affairs has reported favorably a bill authorizing the Kingston Bridge & Terminal Co. to build its proposed bridge across Clinch River at Kingston.

L'ORIGINAL, ONT.—Bids are wanted June 11 by A. Carson, Bridge Commissioner, for a bridge over Castor River, on the line between Carleton and Russell.

MARIETTA, O.—We are informed that nothing definite has been decided regarding the bridge over the Ohio River at Marietta, proposed by the Baltimore & Ohio.

MCKEESPORT, PA.—Plans are reported made for a \$15,000 steel bridge at Irwin St.

MCMINNVILLE, ORE.—The County Clerk of Yamhill County has been ordered to advertise for bids for a bridge across the Chehalen Creek, near Newburg. J. H. Nelson, Clerk.

MINNEAPOLIS, MINN.—Nicol & Taylor, of Minneapolis, have building permits for large concrete and iron grain tanks in East Minneapolis for the Great Eastern Elevator Co. There will be four, to cost \$48,000 each.

NEW ORLEANS, LA.—Regarding the numerous reports that the Southern Pacific proposes to bridge the Mississippi River at New Orleans, we are told that the company has no immediate intention of beginning the work.

NEW YORK, N. Y.—The specifications for the Ninety-sixth St. viaduct, on Riverside Drive, to be built by the Department of Public Works, are now being printed, and bids will probably be asked in a week or so. It will be a skew bridge, 108 ft. between abutments, the main span being 69 ft. on the skew and about 50 ft. wide. It will contain about 400 tons of steel and the masonry work is estimated to cost about \$180,000, the total cost being estimated at \$225,000. The plans were made by Boller & Hodge, 1 Nassau St., New York.

The Commissioners of the New East River bridge May 31 opened bids for the Manhattan and Brooklyn approaches to the bridge. The King Bridge Co., of Cleveland, O., bid \$1,000,000 for the Brooklyn approaches and \$1,500,000 for the Manhattan approaches. The other bid received was from the New Jersey Steel & Iron Works, being: Brooklyn approaches, \$1,331,478, and Manhattan approaches, \$1,989,865. (May 4, p. 281.)

NIAGARA FALLS, N. Y.—The following bids, with plans, were received by State Engineer and Surveyor Edward A. Bond for a bridge over Niagara River, connecting the mainland with Goat Island: Horseheads Bridge Co., Horseheads, steel arch, \$112,000. W. H. Keepers & Co.,

New York city, plan A, an all concrete bridge, \$94,867; plan B, bridge with stone facing, \$93,770. Dwyer & Huntington, and Yates, Albany, No. 1, all concrete bridge, including towers, \$119,563; No. 2, with stone facings, no towers, \$140,000; No. 3, stone facings with towers, \$150,000; No. 4, all concrete, no towers, \$139,277; No. 5, all concrete, with towers, \$149,277; No. 6, stone facings, no tower, \$191,718; No. 7, stone facings, with tower, \$201,718. Niagara Construction Co., Niagara Falls, steel arch bridge, \$115,200. Snare & Triest, New York city, steel arch bridge, \$115,000. Geisel Construction Co., St. Louis, Mo., three propositions—plans A, B, and C, for \$111,540, \$114,320, \$111,540. Ira A. Shaler and D. H. Dixon, New York city, concrete steel arch bridge, from mainland to Croton Island, stone faced, \$93,500; same bridge, together with a bridge from Green Island to Goat Island, total \$136,300. The Toledo Bridge Co., Toledo, Ohio, steel arch bridge, \$117,500. The Central Technical Bureau for Monier Construction, Chicago, Ill., concrete and steel bridge, \$108,743. The Engineering Contract Co., New York city, associated with whom in the proposal are Walker & Morris and Boller & Hodge, steel arch bridge, \$114,750.

PATERSON, N. J.—The Board of Freeholders of Passaic County have authorized a number of steel bridges in various townships. The most expensive will cost about \$2,000. Geo. W. Botbyl, Clerk.

PHILADELPHIA, PA.—A bill has been introduced in the Council to permit Gimble Bros. to build a bridge across Ransstead St., and to build a tunnel under the same street.

PITTSBURGH, PA.—The Schultz Bridge & Iron Co. has the contract for the steel bridge on Forbes St., at \$81,000, according to report. (May 25, p. 346.)

Work has been begun on the open-hearth plant of the Park Steel Co.'s mill, at West Elizabeth. Chas. F. Bittner has charge of the work.

PORT ORCHARD, WASH.—Bids are wanted until July 2 by the County Commissioners for a bridge in Road District No. 10. C. W. Clausen, Auditor, Kitsap County.

PROVIDENCE, R. I.—A bill is before the Legislature regarding the new bridge proposed over the Seekonk River by the New York, New Haven & Hartford. The company has a bridge between East Providence and India Point.

PULASKI, VA.—A bill is before the House of Representatives to allow Pulaski County to build a bridge across New River.

RALEIGH, N. C.—We are informed that the Seaboard Air Line will not let contracts for the \$10,000 bridge mentioned in this column May 25, p. 346.

RAPID CITY, MANITOBA.—We are informed that the bridge proposed over the Little Saskatchewan River will be an iron pin-connected truss, 100 ft. long. It will have a 16-ft. roadway and 4 ft. sidewalk. G. A. Simpson, Chief Engineer, Department of Public Works. (May 11, p. 310.)

ST. LOUIS, MO.—A bill has been introduced in Congress to amend the law providing for a new bridge over the Mississippi River at St. Louis, which provides that if the new bridge is built below the Eads bridge it must have a single span at an elevation of 75 ft. If built not more than 1,700 ft. above the Eads bridge it shall have three spans of the same length as those of the Eads bridge. The bridge company is granted the option by the amended bill of building the bridge at a point opposite or near Mullanphy St., or three-quarters of a mile above the Eads bridge, but if built at that place there must be three fixed channel spans, the west span to have a clear waterway of 565 ft. and the other two channel spans clear waterways of 525 ft. each; and, in any case, the lowest part of the bridge spans must be 50 ft. above the St. Louis directrix.

Bids are wanted, June 15, according to report, for a steel bridge of three spans over Maline Creek. Robert E. McMath, President of the Board of Public Improvement.

SYDNEY, NEW SOUTH WALES.—To extend the time for submitting designs and bids for the proposed bridge across Sydney Harbor, notice is given that plans and estimates may be deposited at the office of the Agent-General for New South Wales, 9 Victoria St., Westminster, London, Eng., as well as at the Department of Public Works at Sydney, until noon on Aug. 1.

TORONTO, ONT.—A bridge is proposed at the head of Parliament St. at a cost of \$10,000 in connection with the proposed extension of the street railroad.

UTICA, N. Y.—Plans have been submitted to the city officers by the New York Central to eliminate grade crossings at Genesee St. and Park Ave. The Genesee St. bridge, exclusive of approaches, will be of three spans, two of 50 ft. and one of 51 ft.

The Park Ave. bridge will consist of two spans of 155 ft. each, being 66 ft. wide. It will have a 40-ft. driveway and two sidewalks of 13 ft. each. Paul Louis Schultze, City Surveyor.

WASHINGTON, D. C.—We are informed that contracts have been let to the Cranford Paving Co. for part of the superstructure of the bridge over Rock Creek, on Massachusetts Ave. extension, also over Rock Creek at Connecticut Ave. extension, to the extent of about \$20,000 for each bridge. The limit of the cost of the Massachusetts Ave. bridge is \$225,000, toward which \$175,000 is now available. Bids are to be opened for the superstructure of this bridge June 16 by the District Commissioners. There is \$50,000 available toward the Connecticut Ave. extension bridge. The bridge will be 1,800 ft. long, of masonry, and cost about \$800,000.

The bridge over Rock Creek at Quarry Road will be about 100 ft. long, of Melan type, costing about \$22,000, which has already been appropriated.

The Commissioners of the District of Columbia are receiving bids until June 9 for a masonry bridge about 49 ft. long over Broad Branch.

A contract will probably be let in June, we are informed, for a 150-ft. steel bridge to cost about \$10,000 by the Washington, Westminster & Gettysburg. James B. Colegrove, President.

WESTVILLE, O.—The Commissioners of Columbiana and Mahoning Counties contemplate building a bridge on the county line, the expense to be shared jointly by both counties.

WILKESBARRE, PA.—Bids will be received by Joseph D. Lloyd, County Comptroller, Luzerne County, until 12 o'clock noon, June 9, for building three iron bridges, one iron and concrete bridge and 19 stone arch bridges.

#### Other Structures.

APPLETON, WIS.—Reports state that plans are under consideration for improvements and additions to the Valley Iron Works, at Appleton.

BALTIMORE, MD.—J. J. Walsh & Sons are reported to



have the contract for two freight sheds for the Northern Central at Calvert Station, to cost \$50,000.

**BENWOOD, O.**—The National Tube Co. is reported to have plans made for open-hearth steel and rolling mill plants which will cost about \$2,000,000. The plans were made by the Wellman-Seaver Engineering Co., of Cleveland.

**BINGHAMTON, N. Y.**—Contracts will probably soon be let for the Delaware, Lackawanna & Western passenger station at the corner of Chenango and Lewis Sts.

**BUFFALO, N. Y.**—Wm. R. Haven has a contract to clear 300 acres for the new plant of the Lackawanna Iron & Steel Co., work on which is expected to begin soon.

**GLASSPORT, PA.**—The Fort Pitt Bridge Works has the contract for the structural work of the new plant of the American Axe & Tool Co., at Glassport, on the Monongahela River.

**NEW BRIGHTON, PA.**—The Pittsburgh & Lake Erie has plans made for a new station at New Brighton.

**PITTSBURGH, PA.**—The Pittsburgh Steel Construction Co. is reported organized by Howard M. Hooker and others. The company proposes to make structural iron and steel for bridges and buildings. Application for incorporation has been made.

**SAVANNAH, GA.**—The City of Savannah has agreed to sell the railroads certain lands necessary for the location of the proposed union station. It is now believed that work will soon be begun. (Dec. 8, 1899, p. 851.)

**SPOKANE, WASH.**—Bids were opened by the Great Northern on Wednesday for the new freight depot at Spokane. The building will be 50 ft. wide and 600 ft. long.

**TOPEKA, KAN.**—Citizens of this place have subscribed \$25,000 to have the Atchison, Topeka & Santa Fe locate its shops in Topeka.

**WICHITA, KAN.**—H. J. Wallau, of St. Louis, Mo., is reported to have the contract for the new passenger station and office building for the Missouri Pacific R. R. at Wichita. The new building will cost \$45,000.

**YOUNGSTOWN, O.**—The Republic Iron & Steel Co. will make a number of improvements at its plants. A new 400-ton blast furnace will be built in Haselton, for which it is stated the contract has been let.

## MEETINGS AND ANNOUNCEMENTS.

(For dates of conventions and regular meetings of railroad associations and engineering societies see advertising page xi.)

### Switchmen's Union of North America.

The convention of the Switchmen's Union of North America, at Detroit, Mich., closed May 30, after a session of nearly two weeks. The following officers were elected: Grand Master, F. T. Hawley, of Chicago; Grand Secretary, J. E. Tipton.

### American Society for the Advancement of Science.

The American Society for the Advancement of Science will meet in New York City at Columbia University during the week beginning June 23. This will be the fifteenth annual meeting of the Association. Governor Roosevelt will deliver an address of welcome and he will be followed by Prof. R. S. Woodward, of Columbia, the President-elect. Among affiliated societies which will be represented at the Congress are the Society for the Promotion of Engineering Education, the American Forestry Association and a half dozen others.

### Car Foremen's Association of Chicago.

The regular meeting of the Car Foreman's Association of Chicago was held in the Monadnock Building, Thursday evening, May 10, about 70 members being present. Seven new members were added to the membership list.

Regarding the charge to be made when lugs are broken off a coupler and the knuckle is missing it was decided that a charge should be made for the coupler body only. The discussion of the subject of draft timbers, dead wood, etc., broken and coupler and attachments missing, showed a diversity of opinion as to the proper charge. Some thought it necessary to ascertain the condition of the missing coupler and knuckle before making any charge, while others thought that the mere fact that the coupler is missing is evidence that it is in good condition and charge would be proper for the draft timbers, etc. As the opinions were so varied it was decided to continue the discussion at the next meeting with a view to securing more definite information.

The discussion of the causes of flat wheels was interesting and instructive, especially the address of Mr. S. J. Kidder, of the Westinghouse Air Brake Company. The following are some of the principal reasons given for slid flat wheels: Wheels slightly out of round; loss of friction between wheels and rails when curving; hand brakes applied; variation of metal in tires and brake shoes; a regularity of brake beam hangers; brake beam levers not of equal proportions; variation in weight of opposite ends of cars; tilting of trucks when brakes are applied; short piston travel when brake slack is taken up on a loaded car; utilizing a portion only of the air brake cars in a train; six-wheel trucks with four wheels braked; excessive air pressure in train line, and lack of care and judgment in handling the brakes.

### Railway Accounting Officers.

The Association of American Railway Accounting Officers held its annual meeting in Boston May 30 and 31. On recommendation of the Executive Committee the Association adopted the proposition of the Board of Quartermasters that a central office for the settlement of War Department transportation matters should be established. The Board believes, as a principle of good accounting, that only one bill of lading and one transportation request, covering the transportation of War Department freight and passengers from the shipping point to destination should be issued.

The special committee on the handling of government bills of lading was continued. No action was taken on the question of the proper classification of expenses on electric railroads. The subject of per diem rates for payment for interchanged freight cars was taken up, but was postponed without action. The constitution was amended so that in questions concerning settlements between roads, where all interests must approve, each road shall have a voting power in proportion to its relative importance.

The Executive Committee was directed to report a plan for apportioning shortages of joint agents.

The election of officers resulted as follows: President, I. G. Ogden, Canadian Pacific, Montreal; First Vice-

president, A. Douglas, St. L. & S. F.; Second Vice-president, J. S. Ford, K. C., F. S. & M.; Secretary and Treasurer, C. G. Phillips, Chicago. The Association voted to hold the next annual meeting in Denver, May 29, 1901.

## PERSONAL.

(For Other personal mention see Elections and Appointments.)

—Mr. John Higginson, at one time Master Car Builder of the Canadian Pacific Railway, died at his home in Detroit, Mich., May 25.

—Mr. H. C. Smith, Master Car Builder of the National Railway of Tehuantepec, died May 21 of consumption at Coatzacoalcas, Vera Cruz.

—Mr. T. Roope, General Master Mechanic of the Eastern District of the Great Northern, at St. Paul, Minn., and Miss Linda M. Barclay were married June 6.

—Prince Hilkoff, Minister of the Russian Department of Transportation, has been given a colleague in the person of the late head of the Administration of the State Railroads, Victor Adrejewich Mjasedow-Ivanov, an engineer whose railroad career began in 1869.

—The Prussian authorities have assigned an engineer of the State Railroads, with rank of Inspector of Railroad Construction, recently on duty in Berlin, a Mr. Glasenapp, as an attaché of the German embassy in Washington. Mr. Glasenapp is to reside in New York.

—Mr. John Wister, President and Treasurer of the Duncannon Iron Co., died at his home at Belfield, Germantown, Pa., June 4, at the age of 71. Mr. Wister established the Wister furnace in Harrisburg in 1867 and operated it until 1880, when the Philadelphia & Reading secured the property. Mr. Wister was also Vice-President of the Perry County R. R. and the Denver Coal & Coke Co.

—Mr. Charles P. Atmore, for several years General Passenger Agent of the Louisville & Nashville, died at Louisville, Ky., May 29. He was born in 1834 on the Island of Guernsey and entered the railroad service in 1856. From 1857 to 1862 Mr. Atmore held various positions in the Passenger Department of the Jeffersonville, Madison & Indianapolis. It was in 1872 that he became General Passenger Agent of the Louisville & Nashville.

—Mr. Albert Ladd Colby, Metallurgical Engineer of the Bethlehem Steel Company, sailed for Europe in the St. Paul, June 6. Mr. Colby was, last fall, selected by the Association of American Steel Manufacturers as their representative to the Paris Exposition and the International Congresses pertaining thereto. He will present a paper before the Congress on Testing Materials advocating the adoption, as international standards, of the standard specifications for iron and steel recently proposed by Committee No. 1 of the American Section of the International Association for Testing Materials. The paper will show the high class of specifications which American steel manufacturers are willing to meet, and it is, therefore, hoped will help to broaden the foreign market for American steel. Mr. Colby has been appointed United States Juror in Metallurgy, a delegate from the United States to the Testing Congress, and a delegate of the American Chemical Society to the Congress on Applied Chemistry.

—Mr. S. H. H. Clark died at Asheville, N. C., June 1, having been in feeble health for a considerable time. He was born on a farm near Morristown, N. J., and at the time of his death was in his 68th year. Mr. Clark's career was of the kind that we like to consider peculiarly

and distinctly American. His father died when he was a child and he began to work for his own living when he was only 11 years old. He appears to have begun his railroad work on a construction train on the Central Railroad of New Jersey. He came under the notice of Mr. Sidney Dillon, and was made General Manager of the Flushing & North Shore Railroad on Long Island. In 1867 he went to the Union Pacific as General Freight Agent. This step was also through Mr. Dillon's influence. In 1878 he was made General Manager of the Union Pacific and in 1886 he was made First Vice-President and General Manager of the Missouri Pacific, which office he held nominally until 1893, although, in December, 1890, he was appointed General Manager of the Union Pacific; in April, 1891, Vice-President, and in April, 1892, President of that road. In October, 1893, he was made Receiver of the Union Pacific, which position he held until the reorganization in 1898. At the time of his death he was Vice-President of the Texas & Pacific and of the International & Great Northern and director in several roads. Throughout his career he had held important offices in various Gould properties. Mr. Clark was one of the very strong railroad men of the country and undoubtedly had a peculiar power of commanding the respect and confidence of the employees of his roads, as well as the respect and confidence of the higher officers and of capitalists.



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## ELECTIONS AND APPOINTMENTS.

**Atchison, Topeka & Santa Fe.**—Ben. Johnson, heretofore Division Master Mechanic of the Eastern Division, has been appointed Engineer of Tests, with headquarters at Topeka, Kan. He will also perform special duties in connection with the Mechanical Department. Thomas Paxton, heretofore Division Master Mechanic of the Chicago Division at Fort Madison, Ia., succeeds Mr. Johnson as Division Master Mechanic at Topeka, Kan. Mr. Paxton will, in turn, be succeeded by John Purcell, heretofore General Foreman at Argentine, Kan.; effective June 1. W. J. Healey, Chief Clerk to C. S. Sutton, has been appointed Auditor of Freight Receipts at Topeka, Kan., succeeding Mr. Sutton.

**Chicago, Rock Island & Pacific.**—J. E. Loy, heretofore General Foreman at Goodland, Kan., has been ap-

pointed Master Mechanic, succeeding R. D. Fiddler, resigned.

**Cincinnati, New Orleans & Texas Pacific.**—I. F. Hall was, on June 1, appointed Superintendent of Car Service, with headquarters at Cincinnati, O. The office of Car Accountant is abolished.

**Colorado Midland.**—C. H. Schlacks, heretofore Assistant General Manager of the Denver & Rio Grande, has been appointed General Manager of the C. M.

**Dominion Atlantic.**—P. Giffins, heretofore General Superintendent, has been appointed General Manager.

**Elizabethtown, Lexington & Big Sandy (Chesapeake & Ohio).**—The officers of this company are: President, G. W. Stevens; Secretary, C. E. Wellford, and Treasurer, C. E. Potts. All these gentlemen hold similar positions on the C. & O.

**Illinois Southern.**—The officers of this company recently incorporated, as successor to the Centralia & Chester, are: President, C. H. Bosworth; Vice-President, J. R. Walsh; Treasurer, J. W. Walsh; and Secretary, C. F. Weinland. Mr. Weinland assumes the duties of Auditor in addition to those of Secretary, succeeding J. K. Connor. With this exception, and until further notice, the officers and agents employed by the Receiver of the Centralia & Chester, will continue in the employ of this company.

**Kansas City & Southern.**—At a meeting of the stockholders held June 1, E. L. Harriman was elected permanent Chairman of the Board.

**Lake Shore & Michigan Southern.**—H. J. Rhein has been appointed General Eastern Agent, with headquarters at 297 Main St., Buffalo, N. Y. Effective June 1. Mr. Rhein succeeds T. S. Timpson, deceased.

**Lehigh Valley.**—The headquarters of G. S. Brantingham, Superintendent of Floating Equipment, have been removed from New York to Jersey City, N. J.

**Louisville & Nashville.**—J. G. Metcalfe, General Manager at Louisville, Ky., has resigned.

**Minneapolis, St. Paul & Sault Ste. Marie.**—Frederick W. Curtis has been appointed Assistant Superintendent of the Minnesota Division with headquarters at Enderlin, N. D. Effective June 1.

**Northern Pacific.**—M. P. Martin, in addition to his duties as Auditor, will also assume those of Auditor of Disbursements.

**Peoria & St. Louis.**—The headquarters of D. L. Wing, Contractor, have been removed from Springfield, Ill., to Chicago, Ill.

**Seaboard Air Line.**—G. P. Johnson, heretofore Superintendent of Car Service, has been appointed Superintendent of Transportation, with headquarters at Portsmouth, Va.

**Southern Kansas (of Texas).**—E. Raymond has been appointed Superintendent, with headquarters at Amarillo, Tex., succeeding W. D. Nelligan, deceased. Effective June 1.

**St. Louis & San Francisco.**—Willis C. Squire, heretofore Engineer of Tests of the Atchison, Topeka & Santa Fe, has been appointed Mechanical Engineer of the S. L. & S. F., with headquarters at Springfield, Mo.

**Union Pacific.**—H. E. Van Housen, Assistant Superintendent, with headquarters at Green River, Wyo., has resigned. W. L. Park, heretofore Assistant Superintendent of Car Service, has been appointed Division Superintendent, with headquarters at Cheyenne, Wyo., succeeding E. C. Harris, resigned. C. B. Keyes, heretofore Acting Assistant Superintendent at Omaha, Neb., succeeds Mr. Park at North Platte, Neb. C. Ware becomes Assistant Superintendent at Omaha, Neb.

**Wabash.**—H. W. Ballou, heretofore Trainmaster, has been appointed Division Superintendent, succeeding Jas. Bruce, who becomes Chief of Fuel and Locomotives.

## RAILROAD CONSTRUCTION.

**ATLANTIC & NORTH CAROLINA.**—A branch is proposed, according to report, from LaGrange, N. C., to run north-east about 15 miles to Snow Hill.

**BALTIMORE & OHIO.**—An officer writes that double tracking on the Connellsville Division is from Mt. Savage Junction, Pa., to Sand Patch, about 24 miles. Sections 1 to 5 inclusive will be built by C. E. Broadhead & Co., to be completed by Oct. 1.

The reported extension from Newburg, W. Va., to Ansten, is simply a siding for the convenience of three coal mining companies.

Nothing has been decided as yet with regard to the line from Powhatan Point, O., to connect with the Cleveland, Lorain & Wheeling. (June 1, p. 364.)

**BELLINGHAM BAY & EASTERN.**—Application has been made to the City Council at Fair Haven, Wash., for permission to build along the water front.

**BIRMINGHAM BELT.**—The company has completed two miles of track in the City of Birmingham, Ala., and has just received rails for four miles more. (Railroad News column, Sept. 15, 1899, p. 650.)

**BRITISH COLUMBIA ROADS.**—Messrs. Cowan, Kappel & McEvoy, of Vancouver, B. C., have given notice of an application to the Legislative Assembly of the Province of British Columbia at its next session for an act to incorporate a company to build a railroad in the Osoyoos division of Yale District, from a point on the International boundary line at or near Cascade City, along the west side of the Kettle River to a point on the International boundary at Carson.

**CENTRAL OF GEORGIA.**—The company is building a spur one mile long at Calcas, Ala.

**CHICAGO & NORTHWESTERN.**—Under the charter of the Southern Iowa, incorporated March 28, the C. & N. W. is building an extension from Lost Creek Junction, Ia., near Stark, to run southwest 21 miles to Lovilia on the Wabash. John S. Wolf & Co., of Ottumwa, Ia., have the contract. The maximum grade is 1 per cent. The bridges will be of wood. (S. I., April 6, p. 228.) It is laid with 72-lb. rails. (Official.)

**CHICAGO, BURLINGTON & QUINCY.**—The extension west to Guernsey, Wyo., which is nearing completion, is to be extended still further west, according to report. Wyoming press dispatches state that grading is in progress west of Guernsey, and that grade stakes are set as far as Evanston, Wyo.

**CHICAGO GREAT WESTERN.**—An officer denies the report



that the company will build from Hampton, Ia., toward Sioux City. (May 25, p. 347.)

**CHOCTAW, OKLAHOMA & GULF.**—An officer writes that he has no knowledge of any extension from Geary, Okla., north to Kiowa, Kan., as recently reported. (May 25, p. 347.)

**CINCINNATI, RICHMOND & MUNCIE.**—C. E. Loss & Co. of Chicago have taken the contract for building the section from Richmond, Ind., to Muncie, 60 miles, on this proposed line.

**CLINTON, DUBUQUE & NORTHWESTERN.**—This company was incorporated in Iowa, June 2, by officers of the Davenport, Rock Island & Northwestern, to build from Clinton northwest 54 miles via Maquoketa to Dubuque.

**CORNWALL & LEBANON.**—Humphreys & Rowe, of Lebanon, Pa., are reported to have taken the contract for double tracking two miles of this line between Colebrook, Pa., and Lawn. The road is now double tracked between Colebrook and Lebanon.

**DAKOTA, NEBRASKA & SOUTHERN.**—This company has been incorporated with a capital stock of \$100,000 to build through the Dakotas, Nebraska and Indian Territory. The principal office is at Atkinson, Neb.

**DELAWARE, LACKAWANNA & WESTERN.**—Preliminary surveys have been made for a branch from Factoryville, Pa., to run west about 5 or 6 miles to Lake Winola, with a possible further extension to Tunkhannock.

**FORT SMITH & WESTERN.**—The Congressional bill has become a law chartering this company to build its line through the Choctaw and Indian Creek nations. It is to run from Fort Smith, Ark., west to Guthrie, O. T., probably by way of Ocmulgee. Right of way through Logan County, and ground for terminals at Guthrie are secured. The incorporators are: John Bale, F. W. Bond, Edgar E. Bryant, George T. Sparks, all of Fort Smith, Ark.; Geo. Hayden, Independence, Mich.; Solomon C. Curry, Ironwood, Mich., and James H. Hoyt, Cleveland, O.

**GREAT NORTHERN.**—Building is reported begun on the extension from Hamilton, Wash., southeast about 75 miles along Sauk Valley to Monte Cristo, and thence by tunnel to Index, on the main line. (April 13, p. 245.)

Surveys are reported in progress for a branch from Bottineau, N. D., to run northwest 12 miles.

**HYNER RUN.**—This road is being built, according to report in Clinton County, Pa., by Williams & Forseman, of Lock Haven, Pa. Judge V. B. Wyckoff has the contract. It is stated that all but one mile of the right of way has been secured and that the road will be ready for operation by August. It is to tap timber lands.

**ILLINOIS CENTRAL.**—E. A. Wickham & Co. have the contract for grading and bridge work on the extension from Parsons, Miss., east 17 miles to Grenada. (May 18, p. 329.)

An officer confirms the statement that surveys are in progress for a cut-off from Mt. Olive, Ill., southwest about 30 miles to Glen Carbon, but no further information is available at present. (May 25, p. 348.)

**ILLINOIS & ROCK RIVER.**—This company was incorporated in Illinois June 2, with a capital stock of \$1,000,000, to build a railroad from Rockford, Winnebago County, to run southwest down Rock River about 60 miles to Rock Falls, Whiteside County, with branches to the cities of Dixon, Oregon and Sterling; also an extension northward from Rockford to the Wisconsin line, etc. The directors are G. E. Plumb and A. F. Millikan, Rock Falls; Thos. C. McMillan, Ephraim Banning and Thomas Banning, of Chicago. The main office is Rockford.

**INTEROCEANIC OF MEXICO.**—An officer writes that there is no truth in the report that this company intends to build a branch line from Tlancapulcan to Tlapa, Mex., at least for the present. (May 18, p. 329.)

**KANSAS CITY, FORT SCOTT & MEMPHIS.**—Surveys are in progress for six miles of track at Horse Creek, Walker County, Ala. (March 2, p. 146.)

**MEXICAN CENTRAL.**—The additional \$1,000,000 of consolidated mortgage bonds recently listed at the New York Stock Exchange, is for general improvements and for branch lines, either already built or building, as noted from time to time in these columns. (Railroad News Column, May 18, p. 329.)

**MISCELLANEOUS COMPANIES.**—The G. W. Lambert Co. was granted a charter by the City Circuit Court of Richmond, Va., May 26, with a capital stock of from \$1,000 to \$5,000, to build railroads, bridges, etc. W. J. Kimbrough is President and G. W. Lambert, Secretary and Treasurer. The International Construction Co. of Kansas City, has been incorporated in Delaware with a capital stock of \$7,000,000, to build railroads, etc.

The Indian Territory Company, of New York, Philadelphia & Texas has been incorporated in Delaware, with a capital stock of \$5,000,000, to build railroads, etc.

**MISSISSIPPI RIVERS.**—A line is projected from Yazoo City southwest about 50 miles to Vicksburg, both on lines of the Illinois Central. H. W. Cooley, a member of the State Legislature, is interested.

**NASHVILLE, CHATTANOOGA & ST. LOUIS.**—The company has for some time been considering the proposition of building a spur to the tomb of General Jackson, at The Hermitage, Tenn., but no decision has been made. (Official.)

**NEW BRUNSWICK ROADS.**—A new road is proposed between Campbellton, N. B., and the St. John River, 110 miles, to connect there with the American lines. The New Brunswick Government has given \$2,500 per mile, and the Federal Government is asked to grant the regular subsidy of \$3,200 per mile for the entire line, and \$6,400 per mile for the first 50 miles, as this portion is difficult and costly. Hon. W. Pugsley, of New Brunswick, is interested.

**ONEONTO & ATTALLA.**—This company has been incorporated by the Louisville & Nashville to build from Oneonto northeast about 25 miles to Attalla. The Secretary of State has named M. H. Smith, President of the Louisville & Nashville, as a commission to take subscriptions to the stock of the company, which is \$200,000. The L. & N. is reported to have completed arrangements for building the line. (April 6, p. 228.)

**PECOS VALLEY & NORTHEASTERN.**—Surveys are reported completed for the extension from Miller, N. M., southwest about 150 miles to El Paso, Tex., and it is stated that building is to be begun soon. (April 20, p. 264.)

**PENNSYLVANIA COMPANY.**—The Grand Rapids & Indiana has bought property for a small yard north of the city limits of Grand Rapids, Mich., to handle business in that part of the city. The company has also bought

property at the south end of the city for a general yard, which will be built as needed. At Petoskey, Mich., rearrangement of the present track is being made to facilitate the handling of the numerous local passenger trains made necessary by the heavy summer resort business at that point. (Official.)

**PENNSYLVANIA ROADS.**—The Sharon Steel Co. confirms the statement that preliminary surveys are in progress for a line to reach mineral lands in Lawrence and Mercer Counties, Pa., but nothing is decided as to building. (June 1, p. 364.)

**PITTSBURGH, BINGHAMTON & EASTERN.**—This company was incorporated in Pennsylvania June 2, with a capital stock of \$300,000, to build a railroad from the Borough of Monroe, in Bradford County, to run northeast 30 miles to the northern boundary of Susquehanna County. The directors are: A. Sawyer, Charles L. Tracy, E. Floyd Keyser, Jonathan A. Hill, E. J. Angel, and Benjamin Kenykendall, Jr., of Towanda; C. H. Ackerman, T. B. Wheeler, and George G. Boyless, of Binghamton, N. Y.

**QUINCY, CARROLLTON & ST. LOUIS.**—Only preliminary surveys have been made and nothing is definitely determined as to the extension east 20 miles to Witt, Ill. (May 25, p. 348.)

**SEATTLE & TACOMA ELECTRIC.**—This company proposes to build an electric road for both passenger and freight from Seattle, Wash., to Tacoma, 30 miles. Building is reported begun at Seattle. It is stated that bonds have been placed in London and that approximately \$1,000,000 is available. The company proposes to buy the coal mine at Renton, where a power plant will be built. Henry Bucey, of Tacoma, is Secretary and General Manager, and H. E. Knatvold, of Tacoma, Treasurer.

**SOUTHERN.**—A. R. Wright has taken the contract for 32 miles of the extension from Allendale, S. C., south 52 miles to Hardeeville. (March 16, p. 178.)

The company is building a spur 1½ miles long at Lincoln, Ala.; also long spurs at Ensley and Blossburg.

The Birmingham Southern is building two miles of spur at Ensley.

**SOUTHERN PACIFIC.**—The Galveston, Houston & Northern, the control of which was recently obtained (Railroad News column, Feb. 2, p. 80), is being put in first-class condition. The City Council of Galveston, Tex., has granted the company right of way on certain streets of the city.

The Central Pacific Co. has made application for a franchise for extensions in the city of Stockton, Cal.

**ST. LOUIS, KANSAS CITY & COLORADO.**—McCarthy & Reichardt, of Little Rock, Ark., are reported to have the contract for the extension of about 40 miles west from Union, Mo., to the west line of Gasconade County. (April 27, p. 280.)

**STRUTHERS & STATE LINE.**—This company has been incorporated in Ohio, with a capital stock of \$50,000, to build and operate a railroad. The headquarters are at Struthers. The incorporators are: Arthur A. Anderson, George F. Arrel, John E. McEvoy, Henry M. Robinson and A. L. Rowland.

**TIONESTA VALLEY.**—The company writes that instead of an extension of the Clarendon Branch, it is simply making a change of grade which will shorten the old line. (June 1, p. 364.)

**UNIONTOWN, WAYNESBURG & WEST VIRGINIA.**—An ordinance is being prepared by the Ohio, W. Va., County Board of Commissioners for a popular vote on the proposition to issue \$500,000 bonds to aid this company. The road is to run from Uniontown, Pa., west 71 miles via Waynesburg, Rogersville and Bristona to Wheeling, W. Va. J. F. Bedell, of Putnam, Va., is Chief Engineer. (April 20, p. 264.)

**VIRGINIA & SOUTHWESTERN.**—Surveys are reported completed for a branch from Elkannah, Tenn., to run to Swalling and Cody's quarries, about 1¾ miles.

**WABASH.**—On account of the adverse decision of the courts as to the Eel River Line, it is stated that the company will build a cut-off from Ft. Wayne, Ind., northeast about 25 miles to Butler.

**WISCONSIN ROADS.**—The Flambeau Lumber Co., on the Flambeau Indian Reservation, according to a Minocqua dispatch, is reported building a railroad 7 miles long into timber lands.

## GENERAL RAILROAD NEWS.

**CAROLINA & NORTHWESTERN.**—The company has made its proposed new mortgage of \$1,320,000 to the Trust Company of America as trustee. (May 4, p. 296.)

**CENTRALIA & CHESTER.**—The Illinois Southern, the successor company, took possession of this property June 1. It is understood that it is to be merged with the Wabash, Chester & Western, which extends from Menard, Ill., to Mt. Vernon, 64 miles, and with the consolidated company to be known as the Illinois & Missouri River. The capitalization will be \$2,000,000 each of stock and bonds, the bonds to run 50 years at 4 per cent.

**CHICAGO & EASTERN ILLINOIS.**—Four bonds aggregating \$3,000 of the Indiana Block Coal Co., have been drawn for payment from the sinking fund at the Farmers' Loan & Trust Co., New York, on July 1. (Dec. 8, 1899, p. 854.)

**CLEVELAND & MARIETTA.**—Notice is given that \$12,500 is available to buy bonds of this company for the sinking fund, July 1, at the Farmers' Loan & Trust Co., New York, at the lowest price, not exceeding par and interest. (Dec. 29, 1899, p. 902.)

**COAL & IRON.**—This company, which is building a line for the West Virginia Central & Pittsburgh (April 13, p. 246), will issue \$1,000,000 of 5 per cent. 20-year gold bonds endorsed by the parent company.

**CUMBERLAND & OHIO.**—The Louisville & Nashville has paid into the courts \$99,007.28, the judgment recovered by the bondholders, which is about half of the amount claimed under the lease as interest on the \$250,000 of 7 per cent. bonds on the Northern Division. (April 20, p. 264.)

**ILLINOIS & MISSOURI RIVER.**—See Centralia & Chester.

**KANSAS CITY & OMAHA (ST. JOSEPH & GRAND ISLAND).**—Holders of receipts and certificates of the Central Trust Co., representing old K. C. & O. bonds, will, upon surrender, receive stock of the company at par for the principal of the bonds. The Central Trust Co. offers to buy the stock on or before July 24 at \$38.70, which is the equivalent of \$387 per bond. In addition holders of certificates will receive a further cash divi-

dend from the past earnings as soon as the balances can be adjusted. A large majority of certificate holders have agreed to accept the offer and the bondholders committee recommends it to all. The property of the old company was sold under foreclosure July 8, 1896, and the new company took possession Nov. 1 following. It is operated under agreement by the St. Joseph & Grand Island.

**KANSAS CITY, OSCOLA & SOUTHERN.**—A special meeting of the stockholders of the St. Louis & San Francisco at St. Louis, May 29, has ratified the action of the Board authorizing the purchase of the K. C. O. & S. by the San Francisco. (March 23, p. 194.)

**LOUISVILLE, EVANSVILLE & ST. LOUIS.**—A committee, of which Richard L. Edwards, 35 William St., New York, is chairman, has been organized to represent the 4 per cent. 50-year general mortgage bonds. Holders are asked to deposit their bonds with the Bank of the State of New York at 35 William St. (June 1, p. 364.)

**LOUISVILLE, NEW ALBANY & CHICAGO.**—Samuel C. Henning has brought suit against this company, now the Chicago, Indianapolis & Louisville, asking for the appointment of a receiver for certain property of the old company for the benefit of the creditors.

**NORTHERN CENTRAL.**—On account of refusal of the State Treasurer of Maryland to accept \$1,500,000 offered in full payment for the mortgage made by the Baltimore & Susquehanna to the State in 1834, a bill has been filed for an injunction against the State officers to compel them to accept the payment. (May 4, p. 296.)

**NORTHERN PACIFIC.**—C. S. Mellen, President, announces that the company has sold all its remaining lands in Minnesota and also large tracts in North Dakota and Washington, comprising more than 1,000,000 acres.

**PENNSYLVANIA.**—In accordance with the advertisement of Dec. 13, 1899, notice is given that certificates of the capital stock to be issued for allotment receipts deposited during the month of May will be ready for delivery at the Stock Transfer Department, Philadelphia, on June 18—those deposited in June on July 18, and those deposited in July on August 18.

**PENNSYLVANIA COMPANY.**—Notice is given that 4½ per cent. bonds to the amount of \$554,445 will be bought July 1 at the National City Bank, New York, at the lowest price not exceeding par.

**PEORIA, DECATUR & EVANSVILLE.**—Judge Allen, of the United States Circuit Court in Illinois has denied the suit brought by stockholders asking for a bill of review in the United States Circuit Court of Appeals as to the reorganization under the second mortgage bonds. (May 25, p. 348.)

**RIO GRANDE & WESTERN.**—Amended articles of incorporation have been filed at Salt Lake City, Utah, increasing the common stock from \$10,000,000 to \$15,000,000, and the preferred stock from \$6,800,000 to \$7,500,000. (May 18, p. 330.)

**ROCKAWAY VALLEY.**—Haines Bros., New York, have bought a controlling interest in this road which runs from Whitehouse, N. J., to Morristown, 26 miles, and it is understood that they are to make the extensions contemplated last year.

**SIoux FALLS TERMINAL.**—This property is said to have been taken under the control of the Willmar & Sioux Falls line of the Great Northern. It runs from Sioux Falls, S. D., to South Sioux Falls, 7.01 miles.

**SOUTHERN.**—The stockholders at Richmond, Va., June 1, authorized the execution of a fourth supplement to the company's first consolidated mortgage deed providing for the issue of bonds thereunder at 4½ per cent. instead of 5 per cent., the present rate. They also granted authority to reduce the capital stock. (May 18, p. 330.)

**ST. PAUL & DULUTH.**—The special meeting of the stockholders called for May 31 to ratify the sale of the property has been postponed until June 14. (May 11, p. 312.)

**ST. LOUIS & SAN FRANCISCO.**—Stockholders, on May 29, authorized all bonds issued approved by the directors up to that date. These comprise \$8,062,000, as follows: Southwestern Division, Seneca to Sapulpa, 113 miles, \$1,500,000; Central Division, Sapulpa to Oklahoma City, 102 miles, \$1,962,000; Kansas City Division, Kansas City to Bolivar, 147 miles, \$3,300,000; Northwestern Division, Wichita to Ellsworth, 106 miles, \$1,300,000.

**TOLEDO, ST. LOUIS & KANSAS CITY.**—A syndicate of bankers, headed by Vermilye & Co., and Hallgarten & Co., have entered into a contract with the bondholders' committee to buy the \$9,000,000 first mortgage bonds represented by the Continental Trust Co. certificates. The price agreed upon is 130 net, with interest at 4 per cent. from June 1 to June 30, at which date payment is to be made. A new bondholders' committee is to be formed which will soon propose a plan of reorganization, including terms for the junior securities. A meeting of the bondholders is called at 30 Broad St., New York, at noon, June 12, to vote upon this offer. (May 4, p. 296.)

**WASHINGTON & POTOMAC.**—The receiver, Henry W. Watson, sends us the following statement with reference to the finances of this property:

The time for the completion of the road, under the laws governing the corporation, expired May 1st ult., and in the interest of all parties concerned it has been deemed best to effect a reorganization of the company. To this end a foreclosure proceeding has been instituted and a sale of all the property of the Washington & Potomac R. R. Co. has been decreed and will be held July 18th next. In the same proceeding the undersigned was appointed receiver of the road and is now operating the same. Immediately upon a sale of the road being effected, it is the intention of the present parties in interest, should they acquire the property, to immediately effect a reorganization under a new charter with a new corporate name, and complete the road between Washington City and Brandywine, on the north, and Mechanicsville and St. Mary's City and Point Lookout southwardly, thus making a continuous line from Washington to Point Lookout, and also to build a branch from the main line to Esperanza at the mouth of the Patuxent River on Drum Bay Harbor. Negotiations for the placing of the bonds of the reorganized company have already been effected with German bankers. (June 1, p. 364.)

**WHEELING BRIDGE & TERMINAL.**—The courts in Ohio and West Virginia have confirmed the sale of the property at foreclosure May 22. (May 25, p. 348.)

**WHITE & BLACK RIVER VALLEY.**—Negotiations are reported under way for a lease of this property to the Choctaw, Oklahoma & Gulf. It runs from Brinkley, Ark., to Jacksonport, 58 miles, and from Wiville to Gregory, 6 miles.